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quantity of good slate rock, shatters and dis-places it at the natural joints, or
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This unique and efficient mill, unparalleled for novelty, wholesale exertion,
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an immense improvement to their manufacture in quality and quantity, and at
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prices (which range from £60 to £140), together with the names and addresses
of some two hundred of its purchasers (some of whom have taken two, three,
or even four of them), will be forwarded at any time, free of charge, on application
to the patentee, as below, who will also send, by sample post, where specially
required, samples of powdered materials in the precise state as they were
pulverised by various disintegrators, consisting of fire-clay, granite, shale,
heavy burnt stoneware, coal, pitch, &c., and likewise the names of some of the
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THOMAS CARR, PATENTEE, MONTPELIER, BRISTOL.

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FROM P. J. MARGERY, ESQ., C.E., ENGINEER OF THE SOUTH DEVON RAIL-
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South Devon Railway Engineer's Office, Dawlish, Sept. 23, 1865.
I have extensively used Messrs. Peacock and Buchan's No. 3 paint or composition,
on the viaducts and bridges of the South Devon Railway, and I consider
it to be a paint of very good qualities, and that two coats of it are equal to three
of other paints ; also that its durability is greater.

(Signed) P. J. MARGERY, Engineer S.D.R., M.I.C.E.
N.B.—The South Devon Railway Company have continued to use it, and are
now painting their stations with it.—February, 1868.

EXTRACT OF A LETTER FROM EDWARD WOODS, ESQ., C.E.

3, Storey Gate, Westminster.

DEAR SIR.—Please prepare 6 cwt. of your composition for preserving timber ;
put up in strong wooden casks, to go round the Horn for the Copiapo Railway
Company.

Believe me, yours truly,

EDWARD WOODS.

Capt. George Peacock. (Signed)

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MAKER, CAMBORNE, whom he considers (having been an assistant to his
father for several years) is in every way capable of creditably maintaining the
good name universally awarded to Wilton's instruments.

A. JEFFERY

Respectfully begs to inform Mine Managers, Surveyors, Engineers, &c., that
having purchased Mr. Wilton's business, and the very valuable acquisitions and
appliances belonging thereto, he has enlarged his Mathematical Instrument
Manufactory, and is prepared to supply THEODOLITES, DIALS, POCKET DIALS,
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OFFICES, 64, CORNHILL, and 10, REGENT STREET, LONDON.

W. J. VLAAN Sec.

Original Correspondence.

UNSUCCESSFUL BORINGS FOR COAL.

SIR.—In the Supplement to the *Mining Journal* of last Saturday appears a letter from Mr. John Randall, headed "Unsuccessful Borings for Coal," in which is the following paragraph :— "And Mr. Davies, at Bullock's Farm, near Spon Lane, bored through 700 feet of Permian, the greater portion of which has been supposed to be below that which was passed through at the Ruck of Stones, and only found a thin seam of Permian coal." This statement, if uncorrected, is calculated to mislead. It is quite true that at the Spon Lane Pits not borings only, but seam of Permian coal was passed through in the upper measures ; but the pits were sunk down to the 10-yard coal, which was worked to the extent of 60 or 70 acres. The depth of the pit on to the top of the coal was 395 yards, the deepest sinking to that measure known ; and the coal was worked to the boundary of the estate up to Spon Lane, to which point the dip of the measure was very considerable, and all along Spon Lane the coal was traced, and left dipping still towards the south-east. From appearances, where the workings terminated, I have no doubt that the 10-yard coal extends very much beyond that place ; and, indeed, at the Ruck of Stones borings the measures passed through were identical with those I met with at Spon Lane, or Bullock's Farm as the property was named locally. The question has often been asked, "Is there any hope of a profitable extension of the working of the 10-yard seam in that direction, where we have positive proof that it exists?" I should reply most emphatically that there is not the slightest hope of any such profitable result to the venturesome speculators who might take it in hand. Many reasons might be given for this, but the most prominent of all is the inordinate greed of the owners of the mines in South Staffordshire ; and, speaking of the whole district, whether of deep or shallow mines, I only give utterance to the universal feeling in saying that the landlords of the mines in that most unfortunate district have systematically but one object in view—to fill their pits at the cost of anyone foolish enough to become their mining tenant.

There are supplies of minerals yet existing in South Staffordshire, but the reason I have stated above is quite sufficient to render them as useless to England as if they existed only in the moon. It is, nevertheless, a subject deserving serious discussion.

Floore, near Weedon, July 14. THOMAS E. DAVIES.

THE LABOUR QUESTION.

SIR.—I was glad to see your able notice, in last week's Journal, of the Social Science meeting discussion of this important subject. Having long paid much attention to the subject, and having the practical experience of an employer of labour, with, at the same time, the most anxious wishes for the welfare of the working classes, I am desirous, if you will give me space, to make a few remarks, which I trust may be worth the careful consideration both of masters and men. The summary given by Sir Kay Shuttleworth at this meeting of the past condition of labourers in their relations with their employers at and from the time of Queen Elizabeth to our days is in many respects a key to most of the difficulties attending the settlement of wages on a fair basis between masters and men.

The labourer was only partially, and by slow steps, set free from his original condition of thralldom when first allowed to have any right to say for what wages he would agree to work. It was long before our Governments understood or acted upon the principle that buyers and sellers could settle prices between themselves without the interference of the State. The pages of our statute books are filled with monopolies and enactments of every kind to regulate the production and selling prices of most articles of utility and luxury, especially of food. Of this pernicious and often tyrannical legislation the workmen had his full share. First, his individual action was restrained by statutes fixing rates of wages. And long after these relics of barbarous times of coercion had ceased to be in force all combination for the common interest, to prevent individuals from being unfairly dealt with under pressure of necessity, and to prevent wages being lowered beneath the rate which the body of any trade agreed to accept, was still declared by the law of the land to be a crime punishable by fine and imprisonment. The fact that this injustice is now redressed, and the freedom equally allowed to employers and workmen of combining and consulting for the interests of both classes, must not cause us one moment to forget the state of things in which Trades Unions had their origin. They were at first secret societies, evading the law as best they could, for the purpose of resisting oppression. This stamped them in many respects with the peculiar features belonging to all secret societies, and unhappily sufficient time has not elapsed since they could stand openly forth without fear of the law to allow them wholly to shake off many of the evil influences of their origin. A few of these influences we will rapidly cast a glance over before reviewing the relations between masters and men at the present time.

The state of antagonism to law resembles in many points that of guerrilla warfare, often the only way in which war can be waged by the weak against the powerful, and deriving from that weakness as its invariable consequence a character of vindictiveness and cruelty, not found in anything like the same degree, if at all, in open and regular conflict between equals. The perils of those liable on detection to be punished as conspirators demand a close union, enforced by terrorism. The separation between masters and men (whose true interests when properly understood will be found the same) became as wide and sharply defined as between the troops of two opposing armies. Even when not at open war each side considered the other as an enemy, only watching an opportunity to commit an injury, hence all intercourse as to terms of employment assumed the most peremptory and irritating forms of dictation and menace, and no mode of agreement save by the pressure of actual or threatened compulsion was believed to be possible. One of the worst consequences of this state of things was that in uniting workmen had to become conspirators. The inevitable effect of this drove them to consider the law of their country as their enemy, and crime as an allowable necessary means of securing their purpose. As all education was long denied to them, they were often little wiser than children who when hurt or struck return the blow in anger against whatever is nearest to them, fancying it must be the offender. Thus when suffering from want of work or low wages the men combined to destroy machinery, really their best friend and ally to help them gradually to a better position. And even if possible more foolishly they fancied they were avenging themselves against their masters by injuring their works and stock in trade, and thus trying as far as they could to lessen their own chances of getting employment. When the strife grew embittered crimes of much cruelty and atrocity were too frequent against those masters who were the most hated of their class, and those men who were not obedient in all things to the leaders of their Unions. These crimes were rarely punished, because all the sympathies of the working population were with the criminal, who would have been regarded as a martyr if convicted of an offence, and all witnesses against him traitors to their class. All this must be borne in mind when viewing the evidence before the Trades Union Commission. Up almost to the present hour these Unions have not emerged from these evil influences, they have enforced a tyrannical sway over their own members, and been often most unreasonable and imperious in dictating to their employers under pressure of their threat, not admitting discussion or argument—"Do this or we strike."

Space would fail me here to instance many cases of this in detail, often crippling the progress of manufacture, causing loss of business in favour of the foreigner, or of some other locality where the men are more reasonable. The history of the loss of the iron shipbuilding business, fairly told out, would amply illustrate this. But now, when the claims of the working class on the best consideration of their countrymen are universally admitted and better understood than before, when the men themselves are daily rising in education and knowledge of their real interests, and, above all, when they are admitted to a fair share in making the laws of their country, let us hope that the worst features bygone oppression has so deeply stamped on Trades Unions will soon disappear, and these Unions rapidly become what the true interests of working men have a right to demand from them. A few words may be well given to what these Unions should

really be and do for their members. This glance over their real uses and duties will show how needful such Unions are to the working men, and how short-sighted it would be to argue that, because past Unionism has in many ways worked to the injury of those it was formed to support, it cannot be made a source of help and strength for the future—to work good instead of evil. It may be granted that in many cases the masters are so wisely considerate and friendly to their men, and the men so well informed of their true interests, and so well contented with the good treatment they receive, that no intervention of any kind is needed, and all that can be desired is to let well alone. Happy, indeed, for both sides is this state of things. But as long as human nature remains what it is we fear this cannot be depended upon to secure the workmen against those employers whose selfishness knows nothing, and cares for nothing save wringing the uttermost they can from the toil of their men, and giving the least possible wages they can get the most need to accept. A good Trades Union is as needful for the interests of the best masters, to protect them from this unscrupulous competition, as for the men, to keep them from being ground to the very dust. But such a Union, to be really worthy of the name, should care for the working members in every way. Rates of wages and conditions of employment, though, perhaps, the chief, are not the sole objects of its supervision. It should

1. Life insurance and sick club of members.

2. Improvement of their dwellings.

3. Education of their children.

4. General regulation of the numbers, to keep supply and demand of labour so as to keep remunerative wages, as far as possible, steady.

5. Such supervision of the general character of English work as may keep up its high standing against continental competition.

For most or all of these objects a joint committee of masters and men should, where possible, be formed to settle all matters in dispute by friendly agreement or arbitration wherever possible. I hope for permission in a future letter to work out, as far as detail as space will permit, the mode of carrying out this outline.

A MAN OF EXPERIENCE.

PREVENTION OF OVERWINDING.

SIR.—I have just read the account of the committal, for manslaughter of James Higgs, the engineer at Messrs. David Jones and Son's colliery, at Caponfield, for overwinding William Jones, a butty ; and from the observations of Mr. J. P. Baker, the Government Inspector, there appears but too much probability that the calamity resulted from culpable carelessness. The Government Inspector stated that he examined the winding-engine and head gear ; he found a high-pressure winding steam-engine of about 30 or 35-horse power attached to the pit in question, and having tried the engine himself he found everything connected with it in complete working order. The requirements of the Mines Inspection Act were fully adhered to. The engine was working a 5-ft. stroke, and was easily controlled. It would be a little over 30 yards from the hand gears to the pit shaft, and there was an indicator showing the position of the load in the shaft. The signals were such as could be easily understood. He could not account in any way for an engineer there drawing over the pulley. It could not be attributable to accident. He tried the engine himself, and it was not at all difficult to work.

think, with all the advances that have been made in machinery during the past century, we ought to have succeeded in finding a means of economising fuel by constructing a really efficient wind-machine.

And even Mr. Gullett's machine was not the earliest contrivance for applying wind-power for mining purposes. Mr. John Kay, in 1738, patented a wind-engine for draining land or mines; in 1749, Mr. Richard Langworthy likewise patented a wind-machine for the same purpose; and in 1764, Mr. Joseph Thornhill had got so far as to regulate, or attempt to regulate, the windmill by the wind itself. From that time the wind-wheel seems to have been comparatively neglected, nearly half a century, from 1806 to 1855, having elapsed between the patents of William Sampson and Joseph Peabody, both of whose inventions were designed for making the fans self-regulating, so as to obtain an equal power in all states of the wind. Indeed, it seems that it is the want of means of regulation alone that prevents the introduction of the wind-engine; and there can be no doubt that the inventor who succeeds in providing the remedy will have a large field of profitable industry before him, and will confer enormous benefit upon mining.—*Truro, July 13.*

R. C. T.

MINERAL PROPERTIES—THEIR POSITION—NO. IV.

"Judges and Senates have been bought for gold,
Esteem and love were never to be sold."

SIR.—In taking a view of the Glanrafon Slate Quarry, near Llan-gynog, we shall have an example of a slate quarry so situated for want of room, and other causes, that it was quite a physical impossibility it could pay. I certainly never saw a slate quarry so limited as to space in my life. The quarry is situated about two miles N.W. of Llangynog. In 1864 I was called on to survey and report on it. The Llangynog slate formation is rather a peculiar one; I noticed it briefly soon after I had been there. Slate strata are found on both sides of the valley, as shown in the diagram:—



Section of GLANRAFON SLATE QUARRY.

And there are several beds of slate alternating with what I took to be felstone porphyry and grauwacke—erroneously printed granite in the Journal at the time. The beds dip at an angle of about 25° on each side. I did not ascertain to a certainty at the time whether the slate and other strata corresponded, and were on or near the same level; but my impression is they were. It thus forms an interesting question how these slate strata, varying from a few feet to 30 yards, were formed alternately, with rocks of so different a composition. Were these rocks formed simultaneously in a semi-liquid state? when, by the law of chemical affinity, all the particles necessary to produce felstone porphyry came together and united, and the particles necessary to produce slate did the same. If so, why did not all the particles of the slate come together, and so all the particles of felstone porphyry? And as the particles of felstone porphyry are much heavier than those of slate, how did they not all obey the universal law of gravity as well as affinity? Or were the hard rocks formed first, and through some means got disconnected, when the silt forming slate, then in a fluid state, was forced into the crevices thus made, and became slate? These are interesting questions, and as I shall give my ideas on the formation of slate and matter generally, I shall say no more here.

Now for the Glanrafon Slate Quarry. The company was formed about 1862, with a capital of 18,000/., 11,200/., of which was paid for promotion money, leaving 6800/., for working capital. Your readers will, probably, think the promotion money rather high, when they are told that the whole sett of the Glanrafon was about six acres. Therefore, could all the slate rock have been taken out, and converted into slates by some magic power, they would not have been so very much more than was paid for promotion money. A place so "cribbed, cabined, and confined" for a slate quarry I never did see. As will be seen by the section, A was the boundary of the Glanrafon; B is the road, from which two tunnels had been driven on the same level; it was thought they could not get the slate rocks out fast enough by one tunnel. Now, the distance between the two tunnels—the whole breadth of their take, was 160 ft., and the perpendicular depth from A down to the level of the river was about the same. From B to the river was about 25 ft. perpendicular depth. It was, therefore, this 25 ft. they had for debris room, and none was to be deposited in the river. When I saw it I could hardly believe my own eyes. How anyone could be insane enough to work a quarry under such circumstances appeared to me a mystery, as extent of room in a slate quarry is second only to good slate rock. After driving the two tunnels nearly under the point A, the task then was to cut a free side from tunnel to tunnel, and up to the point A. This alone, as I stated in my report, would take more than their remaining capital; and after doing this, they would have but the small triangular piece of rock seen in the section marked D. As the slate rock dipped into the mountain at an angle of 22°, the reader will observe the Glanrafon Company had merely the outcrop of the vein, the bulk going into another property. I calculated the whole amount of slate rock in the take, and taking what I thought, from the appearance of the rock, would be the average make of slates per cubic yard, stated what I considered the utmost amount of slate they could possibly get from their take. The rock, after going about half-way through the tunnel, was of a fair quality, and had it been situated differently the result would have been very different. My report and calculations were not considered satisfactory at the time, but a short time ago I had a letter from the secretary, stating that after spending all their capital they had abandoned the quarry; and although they had considered my estimation and description of their property inaccurate at the time, they had found out to their cost I was quite correct. I was very sorry at the time to find that such a lot of unwary, unsuspecting people had been induced to spend their money in such a place by the glowing description of a person whose only aim was to get money out of their pockets and put it in his own. However, if this example, which is not solitary, will teach anyone that they cannot accept everything promoters may have to say about their properties, my object in bringing it forward will not be lost.

I would briefly notice what, Mr. Editor, I must call a burlesque quarry—the Ynysfaig Quarry, near Arthoe. Your readers have heard of the width of slate veins varying from 20 to 200 yards, and even more than that. The vein at Ynysfaig was from 2 to 4 yards wide, and upon this vein the proprietor spent hundreds of pounds, and induced his friends to spend also; and out of this vein its proprietor was going to make a quarry that would throw the Penrhyn, Llanberis, and the Welsh Slate quite into the shade; by a most novel plan of working, such as, had it been adopted, would have created quite a sensation and revolution in slate quarrying. I have not since heard of any revolution, and so I conclude the gentleman rather failed in his anticipations. For such a quarry there must be, of course, a skilful manager. Well, so there was, if diversity of previous occupations is any test of a man's fitness to manage a quarry, and he certainly must have felt that "greatness was thrust upon him" when he was appointed manager of the Ynysfaig Quarry. I mention this instance merely to show that slate quarrying is not without its "curiosities." A slate quarry, with a 2½-yard vein, presided over by an ostler-police manager, is a thing not to be heard of every day; it is one of the wonderful things this wonderful age was to have witnessed. Fact, it is said, is stranger than fiction. We believe it. What enterprising novelist, with the faculty of imagination ever so strong, would have dared to outrage our ideas of things by describing in glowing terms a slate quarry, actually worked, having a vein 2½ yards wide, presided over by such a genius as we have described. In my next I will notice more mineral properties.

The Gorseddan Quarry is a short distance from Tremadoc, in Carnarvonshire. The quarry was commenced, I think, about 1853 or 1854. It is situated in what is known as the Lower Llandeilo or Tremadoc beds, a formation which has not hitherto contributed much towards the mineral resources of England. But the Gorseddan Quarry was going to redeem the character of the formation by giving us a slate

quarry on the scale of the Penrhyn, and to be worked on the same plan—removing a whole mountain of slate. The quarry was laid out magnificently; no expense was spared, inclines were made, barracks built, a railroad to Portmadoc constructed, a lot of top rock removed—in fact, everything that capital could do was done to make a slate quarry. Considerable capital, great deal more than 100,000/., was spent on the property; but they were fighting against the decrees of Nature, and lost the battle. There was no quarry there, and the wonder is that it cost the company this enormous amount of money to find it out. Let anyone visit the wharf at Portmadoc, and look at the rough, coarse, unseemly material falsely called slate, and he will wonder how anyone expected to find a slate quarry in such a locality. It may not unreasonably be asked, How is it that such enormous sums are wasted on worthless properties, when, by a careful and judicious selection, properties can be had that will make a fair return, not fabulose, for the capital expended? My answer is, Mineral fools, nerved by ignorance and assumption, rush in where their angels would tread with fear and caution.

SAMUEL JENKINS.

London.

REFORM IN MINING, AND LEGITIMATE MINING.

SIR.—The argument adduced by Mr. Charles Thomas in his last letter, under the heading, "Reform in Mining," why dues should be exacted before a mine begins to pay, and which I would have noticed earlier but for my absence from home, I think a one-sided one. There is no doubt of this, the same property, under good or bad management, cannot but have the opposite results, and, so far, Mr. Thomas and I am at one; but in the working of a mine the lord is necessarily a party, and this Mr. Thomas appears to overlook. The lord has at his command the means of determining, just as readily as those who are working his property, what is good or bad management; but being certain, as things exist, that he is sure of his dead rent, or dues, he cannot, and does not, take that interest in the question of management which undoubtedly he would do where he to reap no benefit until his property begins to pay those who work it for him; and, as the failure of so many mines is attributed to bad management, although I think it arises in not a few instances from other and worse causes, it is every way his interest to give this question his habitual and serious attention. Besides, how many mines never get the length of meeting costs, but yet must pay the dues regularly. Is this fair? Is it fair that the advantage should be wholly on the side of the lord? He gets his property opened up by others at a great outlay, not risking one farthing himself, and yet reaps all the benefit. Surely the sooner such a state of things is put an end to the better. It is simply, in my opinion, upheld by power and injustice. Were lords not in a position, and could not be in a position, to deal with the question of management of their properties, then I would at once say, let the present state of things continue; but as this is really too absurd an idea for one moment to be entertained, then, as I have already said, the sooner that state of things is done away with the better; and the better, I would say in addition, for all interested. On the subject of the failure of so many mines, I will trouble you shortly with my views; but there is another matter I would at present refer to. Perhaps lords are not so particular as they should be to whom they grant leases. I cannot conceive thoroughly respectable people merely getting up schemes to serve their own ends. Such persons do look to the interests of others as well as their own, but how those of an opposite class—mere reckless adventurers—contrive to get leases I am really at a loss to understand. There is surely room for "reform" here also.

July 16.

OBSERVER.

MINING IN EASTERN NEVADA—NO. I.

SIR.—Presuming that a few items appertaining to the progress of mining enterprise in this (eastern) section of our Silver State would be of interest to the readers of the Journal, I have carefully compiled the following facts, taken by the writer from recorded data and personal observation. Within the vicinity of Austin, in what is known as the Reese River District, we have now secured the attention of capitalists in such a fixed and permanent business-like system that the days of uncertainty and doubt have passed as to the possibility of making investments in mines and mining at all profitable. As the days of "Wild Cat" mines and swindling operators therein now number with the past, and the time has come when credence is being placed in the representations of experienced and honourable men, none but first-class property is being operated on, and, as a consequence, in every instance where development has been attained, dividends are, and have been, paid regular, and but few of our present mining incorporations allow their stock into market. Here we have the mines of the Manhattan Company yielding steadily and without intermission for the past 20 months from \$75,000 to \$115,000 per month, its stock advancing from \$0.45, in 1865 and part of 1866, to \$1.65, as at present, its par value being \$1.00. The mill of the company, since its increase of capacity to full 20 stamps, reduces each month, on an average, 550 tons of ore; average yield for the past four months \$210 per ton. The Florida Mine, New York and Austin Company, a small but regular vein, produced from the time paying ore was reached to the present, a term of 16 months, \$250,000. The Timoke Mine, in 20 months, paid its regular 5 per cent. per month on the capital invested, besides setting aside a fund for permanent improvement. This mine is now doing much better than at any time previous; it is expected to pay 12% per cent. for the past, present, and next month. The Great Eastern, though not doing as well as formerly, is now yielding about half its former quantity, but is on a very high grade, running as high as \$500 per ton. The Troy Mine is far surpassing its former self, its ore for the past five months ranging from \$550 to \$700 per ton. The Magnolia Mine has been for the past three months sinking the incline 200 feet, and running off levels, which will soon be completed, when it will again, as it has done before, furnish its quota to the bullion product of this district. For 11 months this mine produced an average per month of 60 tons of ore, from \$425 to \$550 per ton. The Lane and Fuller shaft is now down 450 ft., cutting four rich veins. The Manhattan new shaft is also down 475 ft.; they cut the same ledges as the Lane and Fuller, they being in line, but distant some 500 ft. The Silver Bell Mine is steadily yielding ore from \$350 to \$650 per ton. The Diana has been worked with good profit all the winter, but is not doing as well at present. The South America is still in the fault, but expect soon to get through it. The Savannah Company have started a perpendicular shaft to strike their mine at about 400 ft. A shaft has also been started to strike the Timoke at 500 ft. The Savage Mine is still idle, awaiting the limitation of law on the late sale to Mr. J. W. Harker, of the National Bank here. As the time will expire in August, we shall soon have the Savage as of yore—one of the leading mines of this place. The company owning the Buel North Star Mine succeeded in getting through the brake after running some 350 ft. through solid granite, and got into their ledge in one of the best bodies of ore ever found in this district. Within the past three weeks they have taken out 75 tons of ore, of the value of \$400 per ton. This company and their agent (C. C. Lane) deserve much credit for their perseverance in prosecuting work for its discovery where many were incredulous as to success.

The Plymouth Company's shaft is down 425 ft., cutting three ledges, and they are now running off their levels. There are many minor operations going on in this district by private individuals, chiefly poor miners; all of which are doing well. The Reese River Consolidated Company have notified their agent, Mr. C. F. Horn, of the National Bank, to make preparations for the commencement of operations on their property at an early date, and also to procure a mill for the company to reduce their own ores in. This company owns some 80 ledges in this district, many of which have stood A long before some of the present paying mines were considered worthy of notice, and yielded their hundreds of thousands from 1863 to 1866, when the company decided to await the advent of the railroad, and its consequent cheaper labour and supplies, for operating on their property. Now that we have the railroad at our door, it being within 70 miles on our west, this company will resume operations, much to the benefit of this district and to their own pecuniary advantage. The productive and developed mines of this company are—the Whitelock, Whitelock Union, Whitelock Yankee, Blade, Wall and Iselleb, Joe Lane, and Apollo. The Matecum mill has started up again, running on Dland ore. The very serious loss to this district by the burning of the Keystone mill is about being remedied, as General Page has decided on rebuilding it. Now that so many of those vertical shafts, which have been sinking the past winter, have cut good pay veins, on which levels are run, and good ore coming therefrom, we look forward in the months of July, August, and along through the fall for heavy shipments of bullion from here. Our shipments for the last quarter were \$69,000; but we fully expect to reach this amount in July per month, and keep it up regularly.

The next most important district (if not the most important) we have in Eastern Nevada is that of Belmont, or, as the district is named, Philadelphia. Here are situated the most extensive, intrinsically considered, mineral-bearing veins in the State of Nevada—the High Bridge, Transylvania, El Dorado, Arizona, Silver Champion, Silver Chord, with their many extensions. True, the Comstock is a much larger vein, but when we compare, or rather contrast, the value per ton of its ores with those of the Belmont Mines, it must be conceded that those of the latter, at least the High Bridge, Transylvania, and El Dorado, are far the more valuable mines. The Combination Company, operating on the north-west end of the High Bridge, have been running their mill, with but one short interruption to change their furnace flues, from their first start to the present. True, they made a most stupid bungle in starting up and running their mill for some six weeks, when, by the sheer stupidity and gross ignorance of those in charge, no less than \$100,000 worth of silver was run down stream, besides producing bullion of inferior grade, it ranging from \$350 to \$600 fine. Mismanagement damaged this company for a time very seriously. A change of management has taken place, and, as a consequence, a vast change in results, as well as in character of bullion, it being now from \$50 to \$50 fine. The company runs 30 stamps dry, crushing and roasting the ore, and 10 wet crushing, amalgamating without roasting, reducing daily from 50 to 80 tons of ore as it comes from the mine, without sorting, the ores being reduced at present, and for the past two months, being taken from the surface, and not deeper than 40 feet, as the pumping and hoisting works of the company are not yet fully completed to admit of working the mine at and below water level. The company have enough of this surface ore, owing to the immense size and regularity of their vein, being of the uniform thickness of from 16 to 20 ft. across, to run their mill full capa-

city for at least nine months to come. This, as I may call it, second-class ore is now, and has been from the commencement of their working, the entire vein matter without selection, and has produced \$2600 to \$3300 per day, or \$47,000 per month. The stock of this company had depreciated in the market in the months of March and April, but has again revived, is now anxiously sought after, and continually advancing.

The Felsview, or High Bridge Mine, of the Belmont Company, has developed some extraordinary rich ore in the back ledge of this mine, surpassing in richness any yet discovered, and of a thickness in this rich pay streak of not less than 4 feet. The average of this remarkable deposit runs as high as \$600 per ton by milling. From want of greater capacity in the present mill of this company, and pending arrangements for one of adequate extent, the company are doing but little in the development of this extraordinary mineral deposit. Owing to the unusual severity of the season, the roads to the mines were impassable in March and April. The company, for want of ore, then ran the mill on the old tailings, which were paying handsomely, yielding, by very rude and imperfect amalgamation, from \$55 to \$80 per ton. The Transylvania Mine, Canfield Company, are about setting to work in earnest on the end of the High Bridge, and expect to be erecting a mill this summer. Mr. Canfield is now on his way from the East, with full instructions from his company to commence extensive operations on the mine, and to erect a mill at once. JOHN R. MURPHY, Austin, Nevada, June 10.

Mining Engineer and Metallurgist.

EAST DEL REY GOLD MINING COMPANY.

SIR.—I have just returned from California, and, hearing that the Emily and Capon Mines are still unworked by the East del Rey Company, deem it my duty to the shareholders and directors to make a few observations on the matter. In the year 1861 I was in charge of these mines, and had set up the pumping machinery and stamps, and began raising the stone. The gold percentage was very high in both mines, but they were temporarily abandoned, under the instructions of Capt. Wm. Treloar, at a time when the ends of the ledges were most promising, and which seemed to myself and the washers of the gold a most surprising and unwise step. I would myself have worked them, in company with others on the spot, had I been rich enough, as the speculation would surely have proved profitable.—*Frogpool, near St. Day, July 15.*

GEO. COOK (late Captain).

MINES ASSESSMENT BILL.

In the House of Commons, on Tuesday, on the order of the day for considering this Bill as amended.

SIR R. COLLIER desired to say a few words as one interested in rating. He remarked on the *tour de force* executed when the Bill was in Committee, the clauses prepared by the Select Committee being swept clean away, and the hon. member for the Tower Hamlets (Mr. Ayrton) substituting for them in five minutes what was really a new Bill. The measure was now in a totally unworkable shape, for overseers would not know whether to rate the owner or the occupier, and in either case great difficulties would be encountered. It would produce litigation, give great trouble to the overseers, and put a great deal of money in the pocket of the lawyers. It was beyond the ingenuity even of the hon. member to solve in five minutes a question which had puzzled lawyers and the Legislature for two years. He thought the proposals of the Select Committee must be substantially reverted to, and, with some modifications, they might be adopted; but at this period of the session it was useless to proceed with it. Precipitate legislation would not prevent the object in view. He would move that the Bill be considered the day following.

Mr. PERCY WYNDHAM regretted that the clauses framed by the Select Committee were not discussed last Wednesday, but hoped they would be brought forward again and fully considered. Mines were already rated in many parts of the country, and he did not believe that the Bill would cause the Cornwall mines to be rated in an obnoxious or oppressive manner.

The SOLICITOR-GENERAL believed that unless great care was taken in rating Cornish mines that industry would come to an end. Remembering the history of this question, he could not but regard the Bill as a pointed sarcasm on the part of the hon. member for the Tower Hamlets. His clause could not possibly work, though it had been suddenly adopted by the House as solving a difficulty which had perplexed all parties for years. The question required further amendment, and he hoped it would be settled next session.

Mr. KNATCHBULL-HUGGES was sure that if the general law of rating were applied to Cornish mines the local authorities would carry it out in a fair manner. If, however, difficulties arose, they would come to Parliament and ask for their removal. Some new clauses had been given notice of, and he trusted the House would proceed to consider them, so that legislation might not be postponed till next session, there having already been too much delay.

Mr. LIDDELL felt bound to inform the House that his constituents viewed with great dissatisfaction the course which had been taken with regard to this Bill, since it did not attempt to redress the anomalies under which coal mines laboured. All agreed that the exemption of mines other than coal mines should be removed, but after the legal opinions which had been given, the only course was to leave the Government to bring in a Bill in a future session. The coal mine interest would be sorry to see the anomalies under which they suffered extended to all other mines.

Mr. BRUCE, though interested in coal mines, thought that great question had properly been excluded from the present Bill. If it would not work in its present shape, it should be re-considered.

Mr. DENMAN was of opinion that the clause of the hon. member for the Tower Hamlets was too vague to be workable. He would advise the hon. member for Cumberland (Mr. P. Wyndham) to withdraw the Bill.

Mr. HARDY had understood that clause would be brought up at the present stage in order to bring the Bill into a workable shape, but none of the clauses on the paper would have that effect. He would, therefore, suggest that the hon. member for Cumberland should be satisfied with the decision of the House in favour of the principle of rating mines, and withdraw the Bill. He was himself very anxious that there should be legislation on the subject, and, though it would not come within his department, he earnestly hoped that the question would be disposed of next session.

Mr. AYRTON thought it would be of very little use for the hon. member for West Cumberland to attempt to carry his Bill in the face of the determined opposition it had met with.

Mr. PAULI concurred in the suggestion made by the hon. and learned member for Plympton.

Mr. PERCY WYNDHAM said that, after the opinions which had been expressed on both sides of the House, he

Meetings of Mining Companies.

PENMORFA SLATE AND SLAB COMPANY.

The first general meeting of shareholders was held at the account-house on the quarry, on Tuesday, at which Colonel HAMLY (the Chairman of the company) presided.

The notice convening the meeting was read.

The report of the directors stated that they have been anxious to place the accounts of the company before the shareholders at an earlier period than the present, but owing to several causes they have been prevented from doing so; the chief reason for the delay being the great desire of the directors to meet the principal shareholders in the company upon the quarry, so that all parties interested might be able to form their own judgment of the very valuable property they possess, and its capabilities for yielding a very handsome profit upon the capital employed in its development. The difficulty in deciding upon a day for the meeting that would suit the convenience of all parties has caused the postponement from time to time of the present meeting. Since the commencement of the work by the present company very little has been done beyond what was necessary to prove the value of the property beyond the possibility of doubt, and the result has been most satisfactory, so as to leave no doubt in the minds of the directors that, with a further outlay for the erection of more powerful machinery, regular returns may be relied upon. The character of the slabs, as the shareholders have been previously informed, is excellent; there is, in fact, nothing better in the neighbourhood. Remunerative contracts for the regular supply of slabs could have been entered into upon several occasions, but it was not deemed prudent to enter into heavy contracts until additional planning and sawing machinery had been erected. The directors have been informed, and they have every reason to believe, that if the quarry were supplied with machinery of the necessary power there would be no limit to the demand for the slabs from the quarry, the quality being, as previously stated, of such undoubted character. The immense amount of dead work in removing the top surface from the slab-rock (generally a most expensive item in the development of all quarries) is in the case of this quarry already done to a great extent, so that it is only to be looked for upon the introduction of further capital.

The following report from the engineer (Mr. G. L. Fuller) was read:-

As you intend to hold your approaching meeting at the quarry, a few words from me explanatory of the present state of the works will, I presume, suffice. You will find that, compared with the number of men employed, a large area has been cleared since the quarry became your property—as also, that in pursuance of the course you then determined upon, our efforts have been confined almost entirely to enlarging the area of the slab quarry. To this course we have been compelled, as being the most economical employment of the very limited means hitherto at your disposal. Our machinery and other arrangements for converting produce remain, therefore, on the original limited scale. I would advise more permanent arrangements for this purpose so soon as you are in a position to make them; meanwhile, though hitherto our excavation has been chiefly on the upper and most inferior slab-beds, we have, by the aid of the above as it exists, not only made and sold slabs, but have also largely increased the stock in hand at the date of your purchase. This increase, estimated at the value given by sales, represents nearly 20 per cent, upon your absolute expenditure at the quarry, and, as this is practically so much saved from what in quarries usually represents "dead work," I do not doubt that you will consider it as giving most satisfactory promise for the future. The upper or north end of your grant, upon which the slate vein exists, remains exactly as at first.

The CHAIRMAN said he had much pleasure in meeting the shareholders upon the present occasion, because it afforded him in the first place an opportunity of congratulating them upon the possession of a really valuable property, and in the next place because the shareholders had an opportunity of inspecting the quarry, and of forming their own opinion as to its prospects of success upon further development. It could not fail to be patent to all connected with this description of enterprise that in every case a large expenditure of capital was absolutely necessary; but, as far as the Penmorfa was concerned, it was a matter of congratulation that a very large proportion of that expenditure had been incurred by the former proprietors, from which it was but fair to assume that they had confidence in the productive resources of the quarry, or otherwise they would not have expended so much capital upon it; and from facts within the knowledge of the directors it was quite certain that the property would never have come into the hands of the present company had it not been for certain financial reasons, to which he need not now further advert. The report just read by Mr. Fuller, the engineer, was, he considered, exceptionally satisfactory, as it clearly showed that the net return upon the outlay made at the quarry, apart from that incurred in the ordinary expenses of the enterprise, showed a favourable result; in fact, as far as his memory served him, it showed a return of more than 15 per cent, upon the quarry outlay. If it were determined to spend some 30000, or 30000, upon an extension of the present works, the fixed charges, it should be remembered, would be increased to a very immaterial extent, while the returns would be considerably augmented, and the rate of net profit proportionately greater. The directors had invited Mr. Ross to attend the present meeting, so that that gentleman might see for himself whether the position and prospects of the quarry were such as to fully justify him in bringing it under the notice of his clients and friends. While upon that point, he might mention that he was associated with Mr. Ross in several miscellaneous enterprises, and all he could say was that if there was one firm in London better able than another to find capital for the development of legitimate enterprises it was that of Messrs. G. R. Ross and Co.—a firm that had obtained for itself an enviable reputation for skill, ability, and probity. (Hear, hear). Those remarks, however, were somewhat digressive from the purpose of the present meeting—which was, in the first place, the adoption of the report of the directors and balance-sheet, which he now begged to move. Before resuming his seat, he wished to impress upon the shareholders the policy, in justice to themselves, to determine upon one decided course of action; that is, either to develop the quarry upon that scale and with that energy which had proved it merited, or agree upon some equitable basis by which capital might be introduced from extraneous sources.

Mr. JOHN OWEN (a director) seconded the motion for the reception and adoption of the report and balance-sheet. Having for many years occupied the important position of superintendent of the various mineral properties belonging to his late father, Sir Hugh Owen, M.P. for Pembrokeshire, he (Mr. Owen) might be allowed to state that he was not without experience in such matters. The shareholders had seen for themselves that they possessed a quarry capable of producing slabs, which their engineer told them were readily marketable at remunerative prices, but, as the Chairman had said, if the Penmorfa Quarry were to be made a great and permanent success, there must be expended a certain amount of capital in placing the property in a condition to produce a large yield with economy and regularity. Unlike a metalliferous mine, where there had to depend for their returns upon the productiveness of the lode, they knew beyond question that their property yielded a commercially valuable product, while the quantity was limited only by the scale upon which operations were extended. As an illustration of what might be done by the spirited but judicious expenditure of capital upon a quarry like theirs, where an enormous outlay, as at previous, had been incurred, and the benefit of it had accrued to himself and fellow-shareholders. The one thing they now had to do was to expand some 30000, or 40000, more, not, be it understood, in speculative operations, but in extending the existing excavations, so as to enable them to produce, regularly and economically, large and increasing quantities of slabs—a commodity readily marketable at prices which left a very considerable margin of profit. Therefore, the only question for the shareholders now to decide was, would they subscribe this further small amount of capital, because if they would not his conscientious opinion was that they would be only acting with justice to themselves to dispose of it to those who were willing and ready to find the requisite funds to bring it into a permanent and profitably productive condition. (Hear, hear).

Mr. JOHN PARRY (mineral agent of the Hon. Mrs. Ormeau Gore) said that he had known the Penmorfa Quarry for many years, and could testify as to the quality of its slabs. He believed a small amount of capital judiciously expended would make it a grand success, and all he could say was that he would render all aid in his power to ensure that end. (Hear, hear).

Mr. G. L. FULLER, C.E., the engineer, did not think the balance-sheet, as drawn out, really did the quarry justice, inasmuch as there had not been half the capital expended upon it as it is indicated in the accounts—that is to say, in actual working operations.—The CHAIRMAN explained that the balance-sheet was drawn out by a professional accountant, and, therefore, the directors could not be responsible for the form adopted. At the same time, he submitted that while what Mr. Fuller had stated was perfectly correct as regards the amount expended upon actual quarrying operations, yet that any shareholder was able by taking out the various items in connection with the working expenses to determine the outlay incurred upon the quarry.

Mr. OWEN thought it might be as well to mention that the directors, whose interest was that of the shareholders, had not drawn the whole of the fees to which they were entitled under the Articles of Association, but merely sufficient to pay for out-of-pocket expenses. Their anxious desire was, apart from their duty, to do all in their power to promote the success of the enterprise.—Mr. SUTTON (large shareholder) considered the proprietors were much indebted to the directors, not only for the modest amount they had taken at their remuneration, but also for the general care with which they had otherwise contributed to the benefit of the undertaking.

Mr. FULLER, in reply to a question, stated that he had drawn out several estimates as to the maximum cost of removing a certain amount of work and making it into slabs, and the price they would realise. The result was that in every case there was always a very considerable margin of profit.

Mr. CROMPTON enquired upon what number of tons the estimates were based?—Mr. FULLER said one of his computations was for the working of 20 or 30 men only. Slate quarries generally reckoned that they profitably produced 1 ton of slate out of 7 tons excavated; but by the Penmorfa the amount would be 1 in 5, and it was a matter of fact that the price they realised for their slabs favourably compared with that for slabs obtained at other quarries—in other words, they realised 3s. 6d. as against 2s. 9d. per square yard.

A SHAREHOLDER enquired whether as the galleries were extended into the mountain the depth of rock to be removed would not increase?—Mr. FULLER said that after a certain depth was reached the rock need not be removed, as it would support itself. He had omitted to mention that his own estimates as to the results to be obtained from Penmorfa had been confirmed by several other quarry managers.

The CHAIRMAN asked Mr. Fuller what amount of capital need be expended to make Penmorfa a remunerative quarry?—Mr. FULLER estimated that the expenditure of 30000, would bring it into a profitable condition. He thought they might get some very good returns the first year. He should like to put 100 men

to work in getting slabs, because by so doing the quarry, so to speak, would be opening itself. In estimating results from an outlay of 30000, he wished it to be understood that the more rapidly it was expended in opening out the quarry the more satisfactory would be the returns; if the expenditure of the amount were spread over a series of years it would be much better for all parties if it were never made. If, however, it were employed in rapid and judicious development, he should not be surprised to see a dividend of 6 per cent. earned the first year, and 10 per cent. the second year, when the actual worth of the quarry would be at least equal to double its present value.

Mr. OWEN thought the best evidence of the valuation of the engineer as to the merits of the quarry was the fact that, before it came into the hands of the present company, he had expended a large proportion of his own private fortune in its development. Afterwards it came into the hands of a company which did not succeed, upon which it was acquired by the Penmorfa Company, and now the question resolved itself into one of capital.

Mr. FULLER said it was perfectly true that he had expended a large amount of his own private means in the development of this quarry, and his present interest in the enterprise was based upon what he considered a well-grounded hope that, by a small additional outlay, successful results would be realised. He did not hesitate to say that by a rapid development of the quarry they would succeed; but if they did not adopt that course their better course would be, as he had already said, to let it pass into other hands.

Mr. SUTTON said it was the first time he had had the pleasure of meeting Mr. Ross, although interested with him in this and in several other undertakings; and he (Mr. Sutton) thought it was but justice to Mr. Ross to state that, considering the times passed through, he had accomplished what many men could not have done under the circumstances. He must confess that he had gone to the property somewhat prejudiced, but after this visit he could inform those of his co-shareholders who were not present that he was perfectly satisfied, and believed, with Mr. Fuller, that by a further small expenditure of capital profitable results would be realised.

The CHAIRMAN said the whole question was could they get the necessary capital, and the answer was would Mr. Ross undertake to get it for them?

Mr. Ross had no doubt, after what he had seen to-day, he would be able to obtain the whole of the necessary capital, which, after all, was but a small amount, by simply placing the matter before a few of his friends. It was evident they had an inexhaustible supply of a really commercial commodity that could be rendered marketable and remunerative by placing the quarry in an efficient working condition—in other words, in a position to regularly return a larger quantity of slabs. As to the quality of the slabs, the most conclusive evidence he could adduce was in the fact that a portion of Westminster Hall, and the Exchange at Liverpool, were paved with them.

After some further discussion the report and balance-sheet were received and adopted. A vote of thanks was passed to Mr. Fuller, the engineer. A vote of thanks was also passed to the Chairman and directors.

The usual compliment to the Chairman terminated the proceedings.

GRYLLS'S ANNUAL MINING SHEET,

FROM JUNE 30, 1867, TO JUNE 30, 1868.

Containing the Quantity of Copper Ore sold from each Mine, British and Foreign—Average Price per 21 cwt., and the Amount of Money—The Average Standard, Produce, and Price for the Year, both in Cornwall and Wales—The Total Amount of Ore, Fine Copper, and Money—Each Company's Purchase—And the Particulars of Copper Ores sold at the Ticketings in Cornwall from June 30, 1849, to June 30, 1868.

CORNWALL.

Mines. Ore. Amount. Price.

Basset, Wheat	1,612	£ 8,899 4 6	£ 5 9 6
Bawdrip	482	5,316 4 6	11 0 6
Bedford United Mines	1,166	3,843 16 6	3 6 6
Bethstone Mine	298	1,063 7 0	7 4 0
Bettiscombe	455	3,875 6 0	8 10 6
Brookwood	1,673	6,904 10 6	4 2 6
Buller, Wheat	149	719 9 6	4 10 6
Camborne Vein	175	574 16 6	3 5 6
Caradon Consols	170	671 2 6	3 19 0
Carn Brea Mines	1,889	9,196 17 6	4 17 6
Carn Camborne	734	1,885 5 0	2 11 6
Cifford Amalgamated	12,169	53,415 7 6	4 8 0
Copper Hill	670	2,596 3 6	4 1 0
Craford Moor	931	5,125 12 6	5 19 0
Croftor, Wheat	299	1,037 14 6	3 9 6
Crelake, Wheat	1215	4,688 2 0	3 17 0
Crenver & Wheat Abraham	1,064	3,365 0 6	3 3 6
Curtis, Wheat	85	167 7 0	1 19 6
Devon and Cornwall United	21,465	89,364 6 0	4 12 0
Dolcoath	215	1,030 12 6	4 16 0
East Bassett	145	856 2 0	5 18 0
East Caradon	2,548	10,164 16 0	4 0 0
East Carn Brea	2,138	7,632 10 0	3 11 6
East Pool	1,736	5,106 1 0	2 19 0
East Rosewarne	891	4,382 3 0	4 18 6
East Russell	610	2,149 3 0	3 10 6
East Wheal Grenville	228	926 7 6	4 1 6
Emily Henrietta, Wheat	394	2,039 11 0	5 3 6
Emma, Wheat	728	3,173 11 6	4 7 0
Foech Regulus	67	520 18 6	7 15 6
Fowey Consols	176	769 7 0	4 7 6
Friendship, Wheat	1,309	6,763 5 0	5 3 6
Furdon	147	758 0 6	5 3 0
Gawton Copper Mine	1,563	4,608 16 6	3 1 6
Glasgow Caradon	1,093	4,302 18 6	3 19 0
Gonamena	187	873 19 6	4 13 6
Great North Downs	2,529	14,221 12 0	5 12 6
Great South Tolgus	821	3,860 14 0	4 14 0
Gunnis Lake (Clitters)	623	2,832 4 0	5 10 6
Hington Down	1,801	5,407 4 0	3 0 0
Levant	593	3,635 6 0	6 2 6
North Wheal Crofty	78	374 9 6	4 16 0
North Downs	632	4,393 5 0	6 19 0
North Grampian	294	1,621 0 6	5 10 0
North Roskar	236	1,229 13 0	5 4 0
North Treskerby	1,501	7,240 16 6	4 16 6
Okel Tor	1,380	4,466 3 0	3 4 6
Old Pembroke	78	48 0 0	0 12 6
Par Consols	1,261	5,710 9 6	4 10 6
Phoenix Mines	1,935	7,251 0 0	3 15 0
Poldice Mines	331	1,268 1 6	3 16 6
Polharmon, Wheat	76	306 17 0	4 1 0
Polmeir, Wheat	163	799 0 6	4 18 0
Prince of Wales	1,537	10,941 18 6	7 2 6
Prosper United Mines	5,218	13,573 12 0	2 12 0
Rose, Wheat	1,321	7,158 2 0	5 8 6
Rosewarne Consols	114	535 9 6	4 14 0
Rosewarne United	474	2,089 15 6	4 8 0
Russell, Wheat	185	721 6 0	5 7 0
Seton, Wheat	4,971	19,211 17 0	3 17 6
Sorridge Consols	59	230 17 6	3 18 6
South Caradon	6,204	49,369 16 6	7 19 0
South Condurrow	248	2,141 17 0	8 12 6
South Crofty	2,684	8,731 13 0	3 5 0
South Dolcoath	125	549 1 0	4 8 0
South Frances	1,519	10,190 1 0	6 14 0
Tincoff	1,052	4	

the latest advices represent them again to be rather in a drooping state. The article has not been in very active demand on the Paris market. The Marseilles market has also been very quiet, and only a few small transactions have taken place. Tin has not experienced any notable change on the Dutch markets. Prices have ranged between 54½ fls. and 54½ fls. Billiton has been dealt in at 53½ fls. The total deliveries and stock of Banca on the Dutch markets to the end of June this year may be summed up as follows:—

	1866.	1867.	1868.
Deliveries to May 31	Ingots 84,076	..... 46,114	..... 55,237
In June	..... 16,579	..... 6,600	..... 15,100
Total	..... 94,655	..... 52,714	..... 68,337
Stock, June 30	..... 113,950	..... 147,872	..... 95,872

The unsold stock of the Society of Commerce was returned June 30 at 66,966 ingots, as compared with 49,445 ingots June 30, 1867, and 107,650 ingots June 30, 1866. At Marseilles the article, without having varied, has been rather feeble held. There has been rather more feebleness on the German markets; at the same time, the article has supported about previous rates. Lead has been feeble on the French markets, but the Prussian markets have been firm. Affairs in zinc have been quiet at Paris, and prices have remained without change. North Silesian has made 20t. 12s.; and zinc from other sources, 20t. 4s. per ton. There is nothing particularly fresh to notice in connection with the Breslau or Hamburg zinc markets.

THE TURBINE.

Some few years since the turbine attracted a considerable amount of attention, and not a few entertained the opinion that it was destined entirely to supersede the ordinary water-wheel, yet at present, although there are some who recognise its value and habitually employ it, its use has certainly not extended so much as could have been expected. Turbines have formed the subject of many patents during the last half-century, the chief features of which are described in the "Abridgments of Specifications relating to Hydraulics," issued by the Commissions of Patents.* The first patent in which the turbine is described appears to be that of Mr. James Rumsey, dated July, 1792. He refers to various modifications of his machine for raising water, and observes that, with but little variation besides being inverted, and causing the water from a fall to pass through it, it becomes a powerful mill. He claims, amongst other things, that the machine is capable of great variation in form and construction without departing from the principle; of acting either as agent or instrument in giving advantageous motion to many kinds of machines; and of communicating their force when acted upon by heavy fluids, such as water, with advantage and simplicity, to give powerful motion to many kinds of machines. In forming his wheels for some objects, he fixed round their axes a spiral projection, or fan, in form of a screw, something similar to that of Archimedes' pump; against this spiral projection, and in the direction of its axis, the water is brought to act, by which means it will give motion and force to the machine, in proportion to the weight of the fluid expended, and the time and distance of its descent.

The invention of Mr. John Gwynne, dated August, 1850, is described as improvements in obtaining motive-power, and in applying the same to giving motion to machinery, being a modification of the reaction or turbine water-wheel, the novelty consisting in the obtaining and applying motive-power by means of a wheel having buckets, consisting of two curvilinear portions, connected by one rectilinear, arranged about a circle within an annular casing. A kind of turbine is also described by Mr. Edwin Bates, in October, 1852. The improvements are stated to consist of a machine or instrument based upon sound geometrical principles, and constituting a propeller. He composes the centre of his propeller of a ball, from which one, two, or more blades radiate, so shaped as to throw the water in which the propeller acts into and against or around the globe, whereby he gains the full propulsive effect due to centrifugal and centripetal forces. The next turbine patented appears to be that of Mr. L. D. Girard, secured in January, 1855, which is composed of one series of vanes, fitted to a disc, forming a movable crown, and of another series, fitted to a disc, forming a stationary crown, the latter series directing the fluid upon the former series of vanes, motion being communicated to a shaft fixed to and passing through the centre of the movable crown. Upon the same general principles, he constructs an engine for forcing fluids, and utilises their vis viva. The vis viva will be produced by the motion of the machine, while in the preceding case the vis viva existed naturally in the fluid.

The improvements of Mr. Narcisse Duvois, patented March, 1855, consisted in constructing the lower part, where the water first enters, in the form of a cast-iron bell or inverted cup open at the bottom. This cup is keyed on the lower end of the vertical driving-shaft, and is fitted with a number of arms of a peculiar transverse section, formed by the intersection of two arcs of a circle, so that the enclosed space is of elliptical form, pointed at each end. In October, 1856, an invention was patented which related to the employment of semicircular flexible valves for regulating the pressure of the water on the blades, the use of double and triple valves for the same purpose, and the formation of a waterway in connection with the valves consisting of two concentric vertical cylindrical plates, provided on the top with two or more segmentary slides. In December, 1856, Mr. L. D. Girard proposed to construct the sides of the turbine-wheel by enlarging those sides, and forming curved valves in the sides of the channel, so as to obtain the utmost possible power from the stream of water employed to actuate the turbine. The machine invented by Mr. Jacques Drotoxée consists of a turbine, to which a rotating valve is adapted, furnished with a drum and grooved disc, receiving the float-boards, and moving with them fixed distributor, fixed by a srew or screw-ring to the boards of the water-chamber. The rotating valve is worked by a hand fly-wheel. In March, 1862, Mr. Evan Owen invented a shield for regulating the supply of water to the buckets. But, perhaps, the most important modification in the construction of the turbine was that introduced by Mr. C. Schiele, and which has frequently been described in the Journal. These turbines appeared to give general satisfaction where used, but since the litigation between the inventor and those who provided him with capital comparatively little has been heard of the machine, and the general introduction of the turbine still remains to be accomplished.

* London: Office of the Commissioners of Patents, Southampton-buildings.

GOLD AMALGAMATION—THE ZINC PROCESS.

Since the introduction of sodium amalgam in connection with the separation of gold, considerable attention has been directed in the United States to testing the advantages derivable in the process of amalgamation from the admixture with the mercury of copper, tin, zinc, and lead; and recently the patented process of Mr. D'Heureuse has obtained, perhaps, the greatest prominence. In the *San Francisco Mining and Scientific Press*, of May 16, Mr. D'Heureuse states that the action of zinc in increasing "the retentive efficiency of the mercury for gold and silver may be attributed to the rough and barbed edges peculiar to the fracture of cast or semi-liquid zinc; similar to the state in which it appears in the amalgam," and with reference thereto Dr. L. Lanssweert remarks that this explanation is somewhat incomprehensible, and lacks clearness which should be expected from the patente of a "zinc process" for extracting gold from its ores, to whom zinc reactions ought to be familiar. It is a peculiar and noted fact that the amalgamation of zinc comprises two distinct phenomena—the liquefaction of that metal by mercury, and the formation of an alloy or amalgam—that is to say, of a well, chemically defined compound. The term alloy, in its most general acceptation, means the mutual combination of one or two or more metals. When one of the metals, however, entering into combination is mercury, the result is not usually termed an alloy; but an amalgam. All ores are practically interesting to the metallurgist in two ways—either the metals to which a metallurgical process of extraction is applied are found in the condition of native alloy—i.e., one naturally existing; or an alloy results as the consequence of an intermediate metallurgical process. In putting in contact mercury with a solution of chloride of zinc, by electrolysis, an amalgam is obtained which, submitted to pressure, gives a combination, crystalline in form, of one equivalent of mercury to three of zinc.

The beneficial effect of zinc amalgam in the reduction of gold ores is doubted by Dr. Lanssweert, and he also doubts the practicability of obtaining the crystalline form of amalgam with the homeopathic dose of 1 oz. or less of zinc for 10 lbs. of quicksilver. He adds that the results obtained from his experiments in that direction have uniformly corroborated his statement that, for the reduction of gold ores, mercury cannot be too pure. The presence of foreign metals alloyed with the gold in a large percentage, as is the case in quartz from most of the lodes, will occasion loss, and much embarrassment in amalgamating; but zinc will only improve the action of quicksilver in the reduction of silver ores; and that of a certain class, especially chloride and bromide—copper having a greater affinity for sulphur than zinc, lead or tin should, for this reason, be substituted whenever the ores to be reduced are mostly sulphides. Zinc is used in Mexico for the reduction of silver ores only—not for gold. The addition of copper, lead, tin, or zinc to the quicksilver, is to obtain a more electro-chemical action on the reductive salts or magistrals, used for the precipitation of silver, and reduce the loss of quicksilver. The proportion of these metals to be so used is that necessary to effect the reductions—that is to say, a little more of one equivalent of these metals for each equivalent of silver to be precipitated. In the experiments made at the Guadalupe Calvo Mine (Mexico), 88 to 85 parts of

copper were used for 100 of silver precipitated. If, in place of copper, lead, tin or zinc is to be used, about the same amount as above will be found necessary; besides, the metal which is to replace the quicksilver, as reducing agent, must be in a very finely divided or minute state; without that its action would be very tedious or incomplete. The simplest process to obtain these metals, thus divided, is to combine them with mercury, and thus make a liquid amalgam easily disseminated through the mass.

But even assuming the use of zinc to be beneficial, Dr. Lanssweert does not seem to think that the best means of employing it has been hit upon, for he asks if millmen, with a dollar's worth of zinc, will save pounds of gold and silver by this first process, what will they save by passing gold-bearing substances, reduced to a fine powder, without previous alloy, through melted zinc, by introducing said substances below the surface of the melted zinc, as per D'Heureuse's patent claim? The melting point of zinc being 70° Fahr., and that of gold 1920°, what effect can be produced or obtained by passing gold ores through melted zinc at 70°, which temperature cannot be increased, as the zinc will in such case pass off into vapour? Sometimes in the manufacture of brass, when the zinc is melted and copper plunged into it, the formation of an alloy will immediately commence, without the fusion of the copper. Copper plates and rods are sometimes partially converted into brass, by exposing them, at a high temperature, to the vapour of volatilised zinc.

FOREIGN MINES.

DON PEDRO NORTH DEL REY.—*Telegram*: Produce for May, 22,191 ots.; produce to June 16, 2251 ots.

VAL SASSAM.—T. Rickard, July 11: The Cantina end was driven during June 1-5 metres. The lode in the end is still regular, and has its usual size and character, but it contains very little ore. The Nora end presents nothing new. The Roffia cross-cut has gone forward 1-10 metres. The Cantina stopes and the tribute pitches have in June yielded to estimate, and we think we may look for about the usual out-turn from them in July. There was rather a falling off in the production of the principal surface pitch in the latter part of last month, but it has since pretty well recovered again. We made good progress last month in exploring at Roffia; the lode is now laid open at different points along the back, over a length of upwards of 100 metres, in wholly new ground; at most points it is sufficiently regular and well characterised, and at one place some good stones of ore have been taken out, and indications justify the hope that something of value will be met with. We have just now sampled 9½ tons, the produce of May and June, and are sending it forward to the Stolberg Smelting Company. The tribute at this mine is now pretty actively carried on; 36 men are employed on it. The ore they raise will be received at the end of the present month, and dressed apart in August. Supposing the contracts given turn out to answer to expectation, I shall avail myself of your authority, and increase the number of men on that work to the full extent there is ground for them.

GONNESSA.—R. W. Rickard, July 8: San Giovanni Mine (lead section): No change has occurred in the 30 metre level, driving west, during the month, the lode there being larger and spotted with ore, but valueless. The Taylor's level, west, has been driven 5 metres during the month, through ground that produces 2 tons of ore per fathom; the end at present is improved, and will yield 3 tons of ore per fathom; our stopes and tribute pitches have somewhat improved lately, and we expect a fair sampling of ore for July month.—San Giovanni (calamine section): The different deposits of calamine on this mine, on which we are working, seem to improve in depth, and we can count on a good production of the ore from this mine for a long time; we have raised during the month about 400 tons of calcined ore.—San Giovanni Mine (lead section): The stopes on the Garibaldi deposit, and turning out well, and the ore seems to continue quite an abundant depth; the southern deposit is, however, not so good in depth, and is yielding but a small quantity of ore per fathom; the "ben trovato" deposit is very much improved since our last report, and promises to yield a very large quantity of ore on the whole, this mine is looking well.—Monte Cane Mine: Victoria level has been driven about 6 metres during the past month, but no ore has been found; this level, however, will soon enter into one ground, the existence of which we have proved by sinking under Georgia level; no material change has occurred in the stopes or tribute pitches during the month; on account of the harvest, much less work has been done than usual.—Acqua Rest Mine: The deep level at Campo Spina is being driven in a slender lode of calamine; the average produce of the whole strip broken in the level is over 40 per cent. zinc; we do not know the exact width of this lode, but, from what we can judge, consider it to be at least 8 metres; this is a very good feature in this part of the mine, proving the continuance of the lode with depth with unabated quality and quantity.—The San Giorgio lode is also holding down well, as far as we have been able to judge; we have sunk a winze 4½ metres under the San Giorgio level, and in the bottom find it to be abundant and of good quality. We shall continue this winze with all possible dispatch, and hasten on the Emilie level, in order to open out good reserves of ore ground in this part of the mine. During the past month the two furnaces were kept to work pretty regularly, and they have produced about 540 tons of calcined ore. The same may be expected for July month.

Guturn Pala Mine: Having communicated Gattuccin's shaft with Enthoven's level, we have limited our operations for this year to stopping on the No. 1 calamine deposit, which yields about 1½ tons of ore per fathom, of good quality. The cost of raising this ore is 5 francs per ton. We propose continuing these stopes during the summer, and at the opening of the campaign recommend putting up a calcining-furnace, capable of keeping pace with the production of the mine.—Gonnese Dressing-Floors: Here the operations have been carried on very unsatisfactorily during the past month, on account of the harvest. Gonnese Calcining Establishment: The No. 1 furnace has been thoroughly repaired during June, and has only worked about 15 days; the other two have been kept going almost without intermission. We calculate the quantity of calcined ore produced during the month at about 800 tons. A similar quantity may be counted on for July. In conclusion, I beg to observe that our calamine mines are looking much better than they have hitherto. The lead mines, on the other hand, have not opened out so well in the ground driven and sunk through during the past few months as we expected.

LUSITANIAN.—July 7: At Taylor engine-shaft, below the 120, the lode produces 3 tons of copper ore per fathom; and in the plat, in the 120, the lode yields 2 tons per fathom. Levels on Basto's Lode: The lode in the 100, east of River shaft, is 2 feet wide, composed of flockan. The 100, west of River shaft, is holed to the same level from Taylor's. The lode in the 120, east of Taylor's, is 9 feet wide, composed of hard quartz and ore, worth 1 ton per fathom. In the 120, west of Taylor's, the lode is 2 feet wide, yielding 1 ton of ore per fathom. The lode in the 110, east of Taylor's shaft, is 2 feet wide, composed of quartz and country. In the 110, west of Taylor's, the lode is 1½ foot wide, composed of quartz and country. The lode in the 90, east of River shaft, is 1½ foot wide, composed of flockan. The 70, east of River shaft, is composed of quartz, containing small quantities of copper ore. The lode in the 38, west of Perez's shaft, is very small, but has a well-defined wall; the ground about it is a very dark flint, intermixed with gneiss. The 18, west of Perez's shaft, is now composed of quartz and mastic; and the 8, west of flockan, intermixed with country. The lode in the adit, west of Perez's shaft, is 8 in. wide, composed of flockan and stones of ore; this is now on the branch formerly driven on, the other is abandoned, being poor, and underlying south. Levels on Caunter Lode: In the 100, east of cross-cut, at Taylor's, the lode is 2 feet wide, producing 1½ ton of ore per fathom. In the 28, east of the slide, on Ponte lode, the lode is 1 ft. wide, composed of quartz, intermixed with country. Cross-cuts: In the 60 cross-cut, south of Oaks's, and in the 60, north of River shaft, the ground is a hard gneiss.—Winzes: No. 73 winze, below the 110, west of Taylor's, yields 2 tons of ore per fathom. No. 72 winze, below the 70, east of the slide, is communicated with the 80. No. 74 winze, below the 80, east of slide, produces ½ ton per fathom. No. 75 winze, below the adit, west, on Perez, is worth ½ ton of ore per fathom.—Carvalhal Mine (Lead)—Great Lode: We are preparing for sinking the incline shaft below the 40 by taking down some north ground, putting in penthouse, &c. The lode in the 40, east of incline shaft, is 3 feet wide, yielding ½ ton of ore per fathom. The 30, east of incline shaft, is 2 feet wide, producing ½ ton of ore per fathom. In the 28, east of slide, on Ponte lode, the lode is 1 ft. wide, composed of quartz, intermixed with country. The lode in the 120, west of Taylor's, is 2 feet wide, composed of flockan. The 100, east of River shaft, the ground is a hard gneiss.—Winzes: No. 73 winze, below the 110, west of Taylor's, yields 2 tons of ore per fathom. The 100, west of River shaft, the ground is a hard gneiss. The 70, east of the slide, is communicated with the 80. No. 74 winze, below the 80, east of slide, produces ½ ton per fathom. No. 75 winze, below the adit, west, on Perez, is worth ½ ton of ore per fathom.—Carvalhal Mine (Lead)—Great Lode: We are preparing for sinking the incline shaft below the 40 by taking down some north ground, putting in penthouse, &c. The lode in the 40, east of incline shaft, is 3 feet wide, yielding ½ ton of ore per fathom. The 30, east of incline shaft, is 2 feet wide, producing ½ ton of ore per fathom. In the 28, east of slide, on Ponte lode, the lode is 1 ft. wide, composed of quartz, intermixed with country. The lode in the 120, west of Taylor's, is 2 feet wide, composed of flockan. The 100, east of River shaft, the ground is a hard gneiss.—Winzes: No. 73 winze, below the 110, west of Taylor's, yields 2 tons of ore per fathom. The 100, west of River shaft, the ground is a hard gneiss. The 70, east of the slide, is communicated with the 80. No. 74 winze, below the 80, east of slide, produces ½ ton per fathom. No. 75 winze, below the adit, west, on Perez, is worth ½ ton of ore per fathom.—Carvalhal Mine (Lead)—Great Lode: We are preparing for sinking the incline shaft below the 40 by taking down some north ground, putting in penthouse, &c. The lode in the 40, east of incline shaft, is 3 feet wide, yielding ½ ton of ore per fathom. The 30, east of incline shaft, is 2 feet wide, producing ½ ton of ore per fathom. In the 28, east of slide, on Ponte lode, the lode is 1 ft. wide, composed of quartz, intermixed with country. The lode in the 120, west of Taylor's, is 2 feet wide, composed of flockan. The 100, east of River shaft, the ground is a hard gneiss.—Winzes: No. 73 winze, below the 110, west of Taylor's, yields 2 tons of ore per fathom. The 100, west of River shaft, the ground is a hard gneiss. The 70, east of the slide, is communicated with the 80. No. 74 winze, below the 80, east of slide, produces ½ ton per fathom. No. 75 winze, below the adit, west, on Perez, is worth ½ ton of ore per fathom.—Carvalhal Mine (Lead)—Great Lode: We are preparing for sinking the incline shaft below the 40 by taking down some north ground, putting in penthouse, &c. The lode in the 40, east of incline shaft, is 3 feet wide, yielding ½ ton of ore per fathom. The 30, east of incline shaft, is 2 feet wide, producing ½ ton of ore per fathom. In the 28, east of slide, on Ponte lode, the lode is 1 ft. wide, composed of quartz, intermixed with country. The lode in the 120, west of Taylor's, is 2 feet wide, composed of flockan. The 100, east of River shaft, the ground is a hard gneiss.—Winzes: No. 73 winze, below the 110, west of Taylor's, yields 2 tons of ore per fathom. The 100, west of River shaft, the ground is a hard gneiss. The 70, east of the slide, is communicated with the 80. No. 74 winze, below the 80, east of slide, produces ½ ton per fathom. No. 75 winze, below the adit, west, on Perez, is worth ½ ton of ore per fathom.—Carvalhal Mine (Lead)—Great Lode: We are preparing for sinking the incline shaft below the 40 by taking down some north ground, putting in penthouse, &c. The lode in the 40, east of incline shaft, is 3 feet wide, yielding ½ ton of ore per fathom. The 30, east of incline shaft, is 2 feet wide, producing ½ ton of ore per fathom. In the 28, east of slide, on Ponte lode, the lode is 1 ft. wide, composed of quartz, intermixed with country. The lode in the 120, west of Taylor's, is 2 feet wide, composed of flockan. The 100, east of River shaft, the ground is a hard gneiss.—Winzes: No. 73 winze, below the 110, west of Taylor's, yields 2 tons of ore per fathom. The 100, west of River shaft, the ground is a hard gneiss. The 70, east of the slide, is communicated with the 80. No. 74 winze, below the 80, east of slide, produces ½ ton per fathom. No. 75 winze, below the adit, west, on Perez, is worth ½ ton of ore per fathom.—Carvalhal Mine (Lead)—Great Lode: We are preparing for sinking the incline shaft below the 40 by taking down some north ground, putting in penthouse, &c. The lode in the 40, east of incline shaft, is 3 feet wide, yielding ½ ton of ore per fathom. The 30, east of incline shaft, is 2 feet wide, producing ½ ton of ore per fathom. In the 28, east of slide, on Ponte lode, the lode is 1 ft. wide, composed of quartz, intermixed with country. The lode in the 120, west of Taylor's, is 2 feet wide, composed of flockan. The 100, east of River shaft, the ground is a hard gneiss.—Winzes: No. 73 winze, below the 110, west of Taylor's, yields 2 tons of ore per fathom. The 100, west of River shaft, the ground is a hard gneiss. The 70, east of the slide, is communicated with the 80. No. 74 winze, below the 80, east of slide, produces ½ ton per fathom. No. 75 winze, below the adit, west, on Perez, is worth ½ ton of ore per fathom.—Carvalhal Mine (Lead)—Great Lode: We are preparing for sinking the incline shaft below the 40 by taking down some north ground, putting in penthouse, &c. The lode in the 40, east of incline shaft, is 3 feet wide, yielding ½ ton of ore per fathom. The 30, east of incline shaft, is 2 feet wide, producing ½ ton of ore per fathom. In the 28, east of slide, on Ponte lode, the lode is 1 ft. wide, composed of quartz, intermixed with country. The lode in the 120, west of Taylor's, is 2 feet wide, composed of flockan. The 100, east of River shaft, the ground is a hard gneiss.—Winzes: No. 73 winze, below the 110, west of Taylor's, yields 2 tons of ore per fathom. The 100, west of River shaft, the ground is a hard gneiss. The 70, east of the slide, is communicated with the 80. No. 7

Now ready, price 5s., by post 5s. 4d.

STATISTICS OF THE MINES OF CORNWALL AND DEVON, WITH OBSERVATIONS UPON THEM.

By THOMAS SPARGO, STOCK AND SHAREDEALER,
GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.

I beg to inform the mining interest that my work, under the above title, for 1866 and 1867 is now ready. It contains the following particulars—viz., the geological position, present prospects, names of owner, manager, and secretary, with statement of the annual returns of each mine during the last two years, and of total dividends paid to the present time. The work is illustrated by a map of Cornwall and Devonshire; geological district maps, divided into eight sections, in which will be shown the boundary lines of each parish, height of hills, sources of rivers, &c.; maps of St. Just, St. Ives, Marazion, Helston, Gwinear, Chiverton, Bodmin, Liskeard, Devon Great Consols, Ashburton, and Exmouth.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINING AGENTS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

MESSRS. WATSON BROTHERS return their most sincere thanks for the great patronage bestowed and confidence reposed in their firm for 25 years, and to assure their friends and clients it will be their earnest endeavour to merit a continuance of both.

Messrs. WATSON BROTHERS have made arrangements for continuing their weekly Circular, which has had a large circulation for many years, to the columns of the *Mining Journal*, their special reports and remarks upon mines and mining, and state of the share market, will in future appear in this column. In the year 1843, when Cornish mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. J. Y. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks, in several mines, ensuring success in the aggregate," and Messrs. WATSON BROTHERS have always selected a list of hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share dealing than there is at present; and, from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services to all connected with mine or the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON BROTHERS transact business in the purchase and sale of mining shares, and other securities, payments of calls, receipt and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years active connection with the Mining Market.

Messrs. WATSON BROTHERS also inform their clients and the public that they transact business in the public funds, railway, docks, insurance, and every other description of shares dealt in on the Stock Exchange.

Messrs. WATSON BROTHERS are also daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

Messrs. WATSON BROTHERS having agents and correspondents in all the mining districts, and an extensive connection among the largest holders of mining property, have the more confidence in tendering their advice on all matters relating to the state and prospects of mines and mining companies, and are able to supply shares in all the best mines at close market prices, free of all charge for commission.

SATURDAY, JULY 11.—Market very quiet. Great Retallack, Chiverton Moor, West Chiverton, and East Bas-etc. dealt in. Prince of Wales, 35s. to 37s. 6d.; Chiverton Moor, 7 to 7½; Chontales, 2 to 2½; West Chiverton, 60 to 61; Great Retallack, 3½ to 3¾; Marke Valley, 7 to 7½.

MONDAY.—Market very dull, and prices almost nominal. Prince of Wales, 3s. to 36s.; Chiverton Moor, 6½ to 7½; Chontales, Gold, 2 to 2½; Great Retallack, 3½ to 3¾; West Chiverton, 60 to 61; East Basset, 11 to 13; Wheat Seton, 62½ to 65.

TUESDAY.—The market continues dull, and prices nominal. Chiverton Moor, 7 to 7½; Prince of Wales, 33s. to 35s.; West Chiverton, 60 to 61; Great Retallack, 3½ to 3¾; Marke Valley, 7 to 7½.

WEDNESDAY.—Settling-day, and, with the exception of a rise in West Frances and East Basset, prices remain the same as yesterday. West Frances, 24 to 26; East Basset, 14 to 16; West Chiverton, 60 to 61; Prince of Wales, 33s. to 35s.; Great Retallack, 3½ to 3¾; Chiverton, 2 to 2½.

THURSDAY.—Market dull. Chiverton Moor, 63 to 7; Prince of Wales, 33s. to 35s.; Chontales, 2½ to 2¾; West Chiverton, 60 to 61; East Basset, 11 to 13; Wheat Seton, 62½ to 65.

FRIDAY.—Market very quiet. Chiverton Moor, 6½ to 7; West Frances, 21 to 26; East Basset, 15 to 17; and Chontales, 1½ to 2½, chiefly dealt in. Prince of Wales, 33s. to 35s.; West Chiverton, 60 to 61; Great Retallack, 3½ to 3¾.

Mining Correspondence.

BRITISH MINES.

BEDFORD CONSOLS.—Thomas Rosewarne, July 11: Having inspected this mine, I find a cross-cut has been driven south about 60 fms. from the lode that has been driven on for 300 fms., where they have intersected a lode, or lodes, of the most promising character, and I have not the slightest doubt on my mind that as you drive west towards the great cross-course you will have large deposits of copper ore. You have now about 55 fms. of backs from the middle adit level, and should you require to go deeper you can bring in a deep adit from 30 to 40 fms. deeper; this is a great advantage in mining. I find there have been sales of copper and tin made from the shallow adit; I do not doubt, therefore, but that you will be well rewarded for your outlay, although it has been a long time coming. I advise the driving east and west on the south lode, also on the cross-cut south, which is somewhat 200 fms. further east; and, if the lode, or lodes, are found to be productive, you will have a profitable mine at once, as your cost would be very small. I find there has been over 12,000t. spent in driving levels, sinking shafts, and erecting engine and buildings. In conclusion, I beg to say that at no distant period you will have a great and lasting mine, from the indications both at surface and underground.

BRONFLYD UNITED.—T. Kemp, July 15: Our progress in sinking the new shaft under the 6s. is still slow. I am pleased to say that the south side of the shaft is through the hard capes, and the lode, as far as seen to the south of the capes, is composed of blue slate, intermixed with strings of lead ore. The lode to the west of cross-cut in the 6s., with the stope under the 6s., are without any change since last report. The stope to the east of winze above the 5s. is looking so well; the men are here employed trammeling out the stuff. The stope to the west of winze, in the back of this same level, is worth 20 cwt. of ore per cubic fathom. A bargain is set to four men to east and divide the new shaft from surface down to the 6s., and to do all other work required, at 5s. per fm. The raft wheel of our crushing mill is completely worn out, and we are obliged to suspend crushing for a few days, in order to put up a new one. I hope to get this completed by Saturday next. Our surface water is very short indeed, but I hope we shall get rain.

CAPE CORNWALL.—R. Pryor, F. Hosking, July 15: The lode in the rise in back of the 100, east of shaft, is 2½ ft. wide, producing tin-stuff of low quality; the ground is favourable for rising but the air is rather light, no time will be lost in effecting the communication to the winze below the 90. The ground in the 100 cross-cut north continues just the same as when last reported. All other places without alteration.

CARDON CONSOLS.—S. Bennetts, July 14: The perpendicular lode, in the 7s. west, seems to be improving, and is now about 1 foot wide, composed principally of fluor-spur, spotted with ore throughout; it still continues nearly parallel with Clymo's lode, which is without any alteration during the past week. The same may be said of the 6s. fm. level west end, and in the winze below the 6s. fathom level.

CEFN BRWYNO.—James Paul, July 14: Saturday last being our setting-day, the following bargains were set:—The 92 to drive east of engine-shaft by six men, at 12s. 6d. per fathom; the lode here is 4 ft. wide, intermixed throughout with good strings of lead ore, yielding pretty good saving work. The same level, west of engine-shaft, is set to four men, at 14s. per fathom; lode 5 feet wide, very hard, and produces good stones of lead ore occasionally. Both this and the eastern end of this level will be suspended in a day or two, as the water will rise in the mine. However, I hope we shall soon get some rain, in order to enable us to resume these points again. The 80, east of engine-shaft, is set to four men, at 14s. 6d. per fathom; lode 3 ft. wide, and yields 12 cwt. of lead ore per fathom. The same level, west of shaft, is set to four men, at 15s. per fathom; the lode here has greatly improved, and is now 5 ft. wide, interspersed throughout with good branches of lead ore, yielding 23 cwt. per fathom, and we hope to lay open a good piece of ore ground here soon. The 56, or deep adit level east, is set to four men, at 12s. per fathom; lode of a promising character, containing a little ore, and letting out water, which is a favourable indication. The air being rather bad at this point, and in the 80 east, we have commenced a rise from an old stope over the 80, which is up about 14 fathoms, in order to effect a communication with the deep adit; and when this is effected it will greatly facilitate the extension of both levels. This point is set to four men, at 18s. per fathom, and the lode yields good stones of ore at times. I purpose putting the men from the eastern end, at the bottom level, to sink against this rise, in order to get a communication as speedily as possible. The cross-cut north, in the 20, is set to four men, at 10s. per fathom. No change at this point since last reported.

CHANTICLEER.—Wm. Wasley, July 16: The 90 yard level is now cleared 15 yards west of shaft, and would have been cleared further, only that the roof of the lode was stopped away by the old men and filled up with stuff, a great deal of which has come down in the level before we could put in timber in the place of the old stuff, which is all broken down; we are now, however, able to put in timber to keep up all the old stuff in the roof, and to clear faster than we were. The air is still very dead in the rise.

mining districts, showing boundary lines of each property, with the lodes, &c., traversing them.

It also contains transverse and longitudinal sections of Dolcoath Mine (kindly supplied by the late Captain Charles Thomas); section of workings in Botallack Mine (supplied by the manager, S. H. James, Esq.); longitudinal sections of workings upon the main lode in Great Wheal Vor and Treaseyan Mine; geological map of the Fowey district (supplied by Major Davis, R.M.); historical account of the Devon Great Consols, and of all the principal mines in the two counties.

CUDDRA.—F. Puckey, July 15: The lode in the 130 end, driving west of Walker's shaft, is hard and spare for progress, but still good for tin, worth 50s. per fathom. In the winze sinking below the 100 the top part of the lode is 6 ft. wide, producing good work for tin; still worth 30s. per fathom. Our stope and tribute pitches are without alteration.

EARL CARN BREA.—I. Richards, July 15: Thomas's engine-shaft is in regular course of sinking below the 90 fm. level, the lode in which is 2½ ft. wide, composed of quartz, capel, fluor, mundic, and a little tin and copper ore. Thomas's Engine Shaft, No. 3 Lode: In the 90 fm. level east the lode is 1 ft. wide, composed of capel, fluor, mundic, and a small portion of copper ore. The lode in the 90 fm. level west is 1½ ft. wide, and worth 1½ ton of copper ore per fm. The lode in the 80 fm. level east is 2 ft. wide, and worth 2 tons of copper ore per fathom. The lode in the 40 fm. level west is 1 ft. wide, composed of capel, quartz, mundic, and copper ore, worth ½ ton per fm.

EARL CHIVERTON.—J. Grose, R. Southey, July 11: Since your last general meeting the men in Bartlett's flat-rod shaft were for the first six weeks engaged in cutting ground in the 25 fm. level for bearers and cistern, fixing a standing llt in that level, also enlarging plat, taking up water, putting in pethouse, and making the shaft complete for sinking. This shaft is now down 4 fathoms below that level, and is being sunk by a full pare of able men, with all possible economy and dispatch, at 20s. per fm. We have been passing through a hard bar of ground, which is of the same character as that we had in the 25 fm. level cross-cut; the ground is becoming more favourable for sinking, and as we near the lode we expect further improvement. We expect the lode in shaft at about the 40 fm. level, consequently there will be no cross-cut, but open at once on the course of the lode with all speed, to get under that rich course or shoot of silver-lead ore gone down in the bottom of the 25 fm. level. We have no other important change since last meeting. Our engine, flat-rods, and pitwork are all in good order, and our operations are being pushed on at an unusually small monthly cost, which may lead to very important discoveries.

EARL GUNNISLAKE.—James Bray, July 16: There is no change in the 30 fathom level cross-cut south. The lode in the shallow adit is 4 feet wide, composed of gossan, mundic, and prian, with good stones of yellow ore. The lode in the rise of the back of the above level is 6 ft. wide, composed of gossan, mundic, and prian, with stones of black ore. The end on the lumpham lode is looking much better than it has been for some time past; it is 2 feet wide, producing 1 ton of ore per fathom, and kindly for further improvement.

EARL ROSEWARNE.—C. Glasson, July 16: We have completed the whitish-shaft to the 115, and have resumed the driving of the 115. In the 115 east the lode is 15 in. wide, worth 7s. per fathom. In the 115 west the lode is 12 in. wide, worth 3s. per fathom. In the 105, west of shaft, there is no lode taken down since my last report. In the 105, east of shaft, the lode is 12 in. wide, worth 4s. per fathom. In the 95, west of shaft, the lode is 10 in. wide, producing very good stones of copper ore from the bottom of the end. In the rise in the back of the 95, east of shaft, the lode is 12 in. wide, worth 10s. per fathom.

EARL SNAEFELL.—W. H. Rowe, July 15: The 20, driving north, continues to lay open a strong and very kindly-looking lode, with small and irregular branches of lead. The end at present is poor, but there is every indication of another favourable change close at hand. The lode in the bottom of the shaft looks livelier to-day—some sugar-spar, mixed with a little lead, is forming on the hanging.

EARL WHEAL GRENVILLE.—G. R. Odgers, W. Bennetts, July 11: The lode in the 110 east is 3 ft. wide, containing good work for tin, and from 1 to 1½ ton of copper ore per fathom; in this level we have met with the ore a great many fathoms before we did at the level above. We have no other change to notice.

G. R. Odgers, W. Bennetts, July 15: The lode in the engine-shaft is a little smaller than it was, but containing good ore and tin. We think that as soon as the ground gets a little easier a favourable change will be met with in the lode. The lode in the 110 fm. level east is 2½ ft. to 3 ft. wide, containing good copper ore and tin, of the former 1½ ton to the fathom, and together worth 12s. to 15s. per fathom. The lode in the 95 east, on the caunter, is 20 in. wide, and worth 8s. to 10s. per fm. The stope in the 110 west and 95 east are worth 7s. per fathom. The men are making excellent progress with the driving of the 7s. fathom level south, to intersect the caunter lode.

EARL WHEAL RUSSELL.—William Richards, July 15: There is no change to report in the character of the lode now being cut into in the 140 fathom level cross-cut. The north part of the lode being carried in the winze sinking below the 130 is 18 inches wide, yielding saving work. The north lode in the 130 east of Davey's cross-cut, is 4 feet wide, and very promising, containing capel, quartz, prian, mundic, and a little ore occasionally. Water issues freely from the bottom of the end. We shall take down the whole of the north lode in the 100, east and west of the cross-cut, so as to fully report upon these points for the general meeting.

EBURY.—William Kitto, July 16: The lode in the shaft sinking below the 50 appears to be slightly improved since my last, and to-day yields good lumps of lead. The 50 fathom level end, driving east, is hard, but the "lough" still continues in the sole of the level, which can only be regarded as most promising. Nothing else new.

FRANK MILLS.—J. P. Nicholls, J. Cornish, F. Cornish, July 15: We have suspended driving the 145 north, on west lode, and put the men to cross-cut east

to lay open a strong and very kindly-looking lode, with small and irregular branches of lead. The end at present is poor, but there is every indication of another favourable change close at hand. The lode in the bottom of the shaft looks livelier to-day—some sugar-spar, mixed with a little lead, is forming on the hanging.

FRANK SNAEFELL.—W. H. Rowe, July 15: We have completed the whitish-shaft to the 115, and have resumed the driving of the 115. In the 115 east the lode is 15 in. wide, worth 7s. per fathom. In the 115 west the lode is 12 in. wide, worth 3s. per fathom. In the 105, west of shaft, there is no lode taken down since my last report.

FRIDAY.—Market dull. Chiverton Moor, 6½ to 7; West Frances, 21 to 26; East Basset, 15 to 17; and Chontales, 1½ to 2½, chiefly dealt in. Prince of Wales, 33s. to 35s.; West Chiverton, 60 to 61; Great Retallack, 3½ to 3¾.

FRIDAY.—Market very quiet. Chiverton Moor, 6½ to 7; West Frances, 21 to 26; East Basset, 15 to 17; and Chontales, 1½ to 2½, chiefly dealt in. Prince of Wales, 33s. to 35s.; West Chiverton, 60 to 61; Great Retallack, 3½ to 3¾.

the new shaft is up 5 fms. The ground recently driven through in the 40 has been worth from 6 to 8 cwt. of lead per fm.; the lode continues good in the end and going below the level. No change in the 50 cross-cut since last week. The lode in the 50 east is split into three parts.

GREAT SOUTH TOLGUS.—J. Daw, July 15: Friday last was setting-day: In Noel's shaft, sinking below the 150 fm. level, the lode is 1 ft. wide, producing 1½ ton of ore per fm.; set to six men, at 16s. per fm. The 150 fm. level, west of Noel's shaft, is suspended, and the men are put to rise in the back of the level, where the lode is 1 ft. wide, producing 1 ton of ore per fm.; set to four men, at 37. 15s. per fm. In the 150 fm. level, east of new shaft, the lode is 1½ ft. wide, composed of quartz, pebble, and mundic; set to four men, at 41. 10s. per fm. In the winze sinking below the 140 fm. level, on the tin lode, the lode is 3 ft. wide, worth 37. per fm. In the 140 fm. level, east of Noel's shaft, the lode is split into two parts, each producing a little ore; set to six men, at 41. 10s. per fm.

GREAT WHEAL BADDERN.—Richard Pryor, H. Tregoning, July 11: Hill Brothers Engine-shaft: In the 75, west of the cross-cut, on the tin lode, the end is hard and spare for driving, but the lode at this point is getting more regular and defined; some good stones of tin have been broken from the in the last day or two, and from present appearances we expect a further improvement shortly. The water continues to flow freely from the lode, which is a good indication. In the 75, west of the cross-cut, on the lead lode, the ground at present is a little harder for driving, there being several branches of spar and mundic crossing the end; the lode is about 3 ft. wide, containing lead, hookan, spar, and mundic. We have seen more lead there during the past week than for some time past, and we look for a greater improvement as we get nearer the western mine.

GREAT WHEAL VOR UNITED.—S. Harris, G. M. Henty, J. James, July 15: Ivey's engine-shaft is sunk 7 fms. below the 194, and is still being sunk to the north of the lode; the ground is hard, but looking congenial for mineral. The 194 is driven west of shaft 14 fms.; the lode in the present end is 3 ft. wide, worth 40s. per fm.; this is a very important point, having the ground standing whole to the 175. The 194 east is communicated with the same level driving west from Metal shaft, and has laid open a large extent of tinny ground. A rise in back of this level, 13 fms. east of shaft, has been commenced to hole

be able to speak of an improvement here. The two stopes in the back of the 60, east and west of Phillip's rise, are looking well, and each worth 12. per fathom. A stope in the back of this level, east of No. 3 rise, is worth 7. per fathom. A stope in the bottom of the 50, west from point of horse, is worth 7. per fathom. A stope in the back of the 50 west is worth 12. per fathom.

NORTH WHEAL CHIVERTON.—W. Hancock, William T. Bryant, July 14:

The shaft is cased and divided to the 100 fm. level, and all other necessary work completed so as to commence drawing from them to-night. Good progress is being made in cutting plat at this level, which is going towards the lode. We are in about 9 feet in the back of it, and think we have reached the south wall of the lode, which produces quartz, lead, and muntic, and is letting out more water than we have hitherto seen in cross-cutting towards the lode. As soon as the stuff that is accumulated is drawn away, no time will be lost in cutting through the lode as well as completing the plat, so as to resume sinking the shaft. In the 90 fm. level east we are driving on the north part of the lode by six men, at 45s. per fathom; when last cut through about 3 fathoms behind the present end, it is 16 feet wide, composed of quartz, muntic, occasional stones of lead, and copper, and presents a good appearance. This end is being pushed on as fast as the nature of the ground will admit, in order to get back under the lead ground gone down below the 90 fm. level. In the same level west we are driving on the south part of the lode by two men, at 70s. per fathom, producing quartz, capes, blonde, and a little lead of rather a promising appearance. We shall be in a position to commence clearing the level at Hicks's shaft in a day or so. From the information we can get no doubt we shall find a payable lode there. We have put down a new working barrel in the flat-rod shaft. Our pitwork and machinery are in good working order. Our blends sold to Messrs. Vivian and Sons, computed 38 tons, average about 27. per ton; copper ores, computed 4 tons, at 61. 12s. 6d. per ton; and shall sell to-morrow two parcels of silver-lead ores, No. 1 (computed), 7 tons; No. 2, 32 tons.

OKEL TOR.—J. Rodda, July 16: The lode in the 80 east is producing good saving work, but not looking so well as last reported. In the 65, west of Hele's winze, the lode is large, and of a promising character; the south part of it, on which we are driving, is producing good stones of ore. In the same level east the lode is not yet cut through; in the furthest point reached it consists of capel, spar, peach, and muntic. The stopes throughout the mine are looking just the same as last reported.

OLD GUNNISLAKE.—H. Rickard, July 14: On Saturday the following bargains were set:—Seven pitches by 14 men, at an average tribute of 11s. 6d. in 17. (three pitches time not out). The 91 cross-cut to drive south from Michael's shaft by six men; stoned 20 fathoms, or cut whole ground, at 17. per fathom. The cross-cut at the 48 to drive north from Parker's deep adit by six men, at 42. per fathom; stoned 5 fms., or the month. All the filling, trammeling, and landing by three men, at 10s. 10s. per month. At Michael's, the dressing of the tributaries work thus far is turning out very satisfactory. The engines are working well, with a considerable reduction in the quantity of coals this dry weather.

OLD WESTMINSTER.—A. Edes, June 15: The lode in the pitches east and west of the Bramstock sump are much the same as last reported, producing 1/2 ton of lead ore per fm. The pitch east of No. 1 sump is producing 1 ton of lead ore per fathom. The stope in bottom of the 65, west of Bramstock sump, is producing about 1/2 ton of lead ore per fm. All other places are much the same as last reported. I expect the ore will go off to-morrow.

PEDN-AN-DREA UNITED.—Wm. Tregay, J. Thomas, E. Chegwin, July 11:

Sump: The lode in the 140 fathom level, west end, is worth 12. per fathom. The lode in the 130 west is worth 8. per fathom. The lode in the 120 fathom level west, winze is worth 8. per fathom. The 120 east is being driven on Skinner's south lode, on part tribute and part utwork. The lode here is worth 8. per fathom. The lode in the rise in the 100, east of Bragg's, is divided into branches worth about 8. per fathom.—Cobblers': The lode in the shaft sinking below the 120 is worth 10. per fathom. The lode in the 120 fathom level, west end, is worth 8. per fathom. The lode in the stope in the back of this level is worth 10. per fathom. The lode in the 110 east produces stones of tin. The lode in the 110 west is worth 12. per fathom. In the 90 north we have intersected some branches, but nothing of any importance since last report. Much water is still issuing from the end. The lode in the 55 north, west of cross-course, is worth 21. per fathom. East of cross-course we have broken good stones of tin from the lode standing behind the old men's level.

PENHALLS.—S. Bennetts, W. Higgins, July 11: The lode in the diagonal shaft continues worth 12. per fm. In the 60 east the lode is still small, and not sufficiently productive to value. In the 60 west, at this level, no lode has been taken down since setting-day. The new lode has not been found on the west side of the cross-course, at the 50. The 45 east is worth 8. per fm., and the 44 east, on Pink lode, 6. per fathom. The Pink lode in the 40 west is become larger, but is not improved in quality. In searching through that portion of the old Pink Mine which is already cleared we find ground standing west of the shaft which will pay us very well to work.

PENHALLE UNITED.—Richard Pryor, H. Bennetts, Joseph Pryor, July 15:

We have cleared and secured the 70, south of Hall's shaft, to Phillips's engine-shaft, and the men are now busily engaged putting in launders from the 48 to the 80, in order to take up the water, after which we shall commence to clear the 90, north and south of the engine-shaft. Hall's shaftmen are at present fixing shaft-rollers, in order to send the kibble to the 70. The putting in of the balance-bob at this shaft is completed, and we are busily engaged in fixing the flat-rods, &c., so as to clear this shaft below the 70. Our tributaries are working well, and are breaking fair quantities of lead, and we shall sample about 25 tons of lead on Saturday next. All the surface work is being pushed on with all speed, and all being well, we shall shortly have the mine cleared and put in good working order, when large quantities of silver-lead can be raised, and a valuable property opened up.

PENHALLE WHEAL VOR.—W. H. Martin, July 15: The ground in the engine-shaft sinking below the 84 is at present very hard and spare for progress.

—Penhal North Lode: In the 60, west of Holroyd's shaft, the lode is 1 ft. wide, composed of peach, prian, and a large quantity of muntic, with stones of tin. The lode in Ritchie's shaft, sinking below the 50, is worth 4. per fathom. In the 50 fathom level end, west of this shaft, the lode is 10 inches wide, and produces tin. From the indications I think we are near the Bounder cross-course. There is no change to remark in the 50 fathom level south cross-cut. We have now 10 pitches working on tributaries.

PRINCE OF WALES.—J. Gifford, W. Gifford, July 14: In the 65 east no lode

has been taken down since last report. In the 65 west the south part of the lode, on which we are driving, is 3 ft. wide, yielding occasional stones of rich ore, and promising further improvement. In the 55 east we are continuing our driving by the side of the lode. Two stopes in the back of the 55 east are worth on an average 30s. per fathom each. We have begun sinking a winze in the 55 east by the side of the lode, about 5 fms. east of the first cross-course, where the lode when driven through was worth 30s. per fathom. In the 55 west we are driving by the side of the lode; when last taken down it was worth 10. per fathom. The stope in the back of the 55 west is worth 20s. per fathom. In the 45 east we continue driving by the side of the lode. In the 45 west the lode is 3 ft. wide, of the same character as when last reported. The stope in the back of the lode is worth 20s. per fathom.

PRINCE OF WALES.—George Rickard, July 15: The lode in the north adit level, west from cross-cut, is 3 feet wide, of a most promising character, composed of peach, gossan, and muntic, &c., with stones of black copper ore occasionally. The ground at this point has improved for driving, and the men are making good progress. The lode in the air-shaft is over 3 1/2 feet wide, composed of capel, peach, and muntic, with stones of yellow copper ore. No other change.

PROSPER UNITED.—W. Glanville, J. Hall, July 9: The 100 west is producing saving work for tin. The 100 fm. level stope is worth 7. per fathom. The 90 west is poor. The stope in the bottom of the 90, east of Hand's, is worth 8. per fathom. The 80, west of Hand's, is worth 5. per fathom. The 80, east of Louisa's, is looking promising. The 70, on Moor lode, is at present poor, but we are expecting an improvement shortly. The 60, west of the cross-cut, on Moor lode, is worth 10. per fathom. The 60, east of the cross-cut, is worth 3. per fathom. The stopes in the back of this level are worth 15. per fathom. The 70 east, on Gwallon lode, is worth 6. per fathom. The stope in back of this level is worth 6. per fathom. The 60, west of the cross-cut, on Pope's lode, is producing saving work for tin. The 60, east of cross-cut, on Pope's lode, is worth 5. per fathom. The 50 west, on Pope's lode, is worth 5. per fathom. The stopes in bottom and back of this level are worth 5. per fathom. The 40 west, on Pope's lode, is producing saving work for tin. There is no change to remark on in any other part of the mine.

REDMOOR.—T. Taylor, July 16: There is no particular change in the stopes east and west of the run. The ground is good for working, and I think from what we have stamped the stuff will turn out as expected. This is a most exceptionally dry time, and although we have Holm bush water there is hardly enough to work four stamps.

ROSECLIFF AND TOLCARNE.—R. Pryor, July 15: We have again set the following bargains:—The 50 to drive south-east from Lindo's engine-shaft, by six men, at 6. per fm.; the ground in this end is harder than usual, and is very troublesome for driving; in consequence of being so wet we have not cut the lode as yet, but are daily expecting to do so. The old engine-shaft to sink below the 30, by six men, at 4. per fm., where the lode is 2 ft. wide, composed of muntic, spar, and stones of lead; a kindly lode, and in sinking the shaft 3 or 4 fms. deeper another part of the lode which split off about the 10 will come in this shaft. A winze to sink below the 30, on No. 1 lode, by four men, at 27. per fm., in a lode 2 1/2 ft. wide, which will produce 2 cwt. of lead per fathom; this winze is also drained quite dry by the 50, driving south-east from Lindo's engine-shaft. Our pay and setting went off satisfactorily.

ROSEWARNE CONSOLS.—John Nancarrow, R. Knuckey, July 11: At our usual survey to-day the following work was set:—Sarah's shaft to sink below the 40 by six men, at 31. 10s. per fathom; the lode yields good ore. The 40 to drive west by three men, at 17. 5s.; the end is opening ground that can be worked to a profit. The 40 to drive east by three men, at 17. 15s.; lode yields ore to save. The 70 to drive east by three men and three boys, at 37. 5s. per fathom; here we have recently been opening out some good ore ground. We have also set two pitches in back of the 40 at 6s. 8d. and 10s. in 17., two below the 30 at 12s. and 13s. 4d. in 17., and two pitches on the 17s. and 18s. 4d. in 17.

SORT RIDGE CONSOLS.—J. Richards, July 11: Hitchins's engine-shaft is in regular course of sinking below the 140, and is down to within 9 ft. of the required depth for a 152; this will occupy three weeks more to accomplish. The ground is of the same congenital character as heretofore. As soon as the shaft is down no time will be lost in cutting punch pit in the 140, and bringing down the punch road, which, together with driving the 152 cross-cut and intersecting the lode, will occupy another six weeks, so that the lode in all probability will be seen in nine weeks from this time. In the 140 east, and east of the cross-cut, no lode is as yet met with.

SOUTH CONDURROW.—J. Vivian and Son, Wm. Williams, July 11: We are driving the 93 south from King's shaft, being now in 5 ft., and expect to have to drive 7 ft. more to intersect the lode. In the 82 west the lode is smaller than it has been, but is otherwise without alteration. In the 71 east there is no alteration. In the 71 west the rock is easier for driving through, and the lode presents a better appearance. In the 61 north, on the cross-course, east of King's shaft, no lode has yet been intersected, and the ground continues favourable for progress. In the 61 west we have driven about 4 fms. south, and appear to be cutting into the south part of the tin formation, which is being stope behind this end; the tin-stones is of much the same character and quality as that in the stope. The stope behind the last-named end continues to open out a large tin formation of the same quality as when last reported on. In the 51, west of Vivian's shaft, there is no alteration worthy of notice, the appearances continuing to be favourable for copper. The tin pitches on the middle lode are producing mineral in fair quantities, and of average quality. There is nothing to remark on in the other parts of the mine. It will take a day or two more to get the steam-whim ready to work.

SOUTH DARREN.—W. H. Boundy, July 11: There is no particular change to notice in the ends since last reported on. The stopes throughout the mine continue to yield their usual quantity of ore. We sampled yesterday (Friday) 30 tons of silver-lead ore. Surface water still scarce.

SOUTH GREENVILLE.—G. R. Odgers, W. Bennetts, July 11: We cannot see any alteration in the character of the lode or the granite in the engine-shaft, sinking below the 30, since our setting report.

SOUTH HERODSFOOT.—W. Goldsworthy, July 16: We are pushing on the cross-cut at the 100 as fast as possible. The ground is at present rather hard, being intermixed with capel and spar, in which are spots of lead and copper.

ST. JUST AMALGAMATED.—R. Pryor, R. Wearne, W. White, July 15: The lode in Sawies's engine-shaft, sinking below the 100, is worth 12. per fathom. The lode in the 100, driving east of engine-shaft, is worth 4. per fathom. In this level, driving west of the shaft, the lode is worth 5. per fathom. The lode in the 90, driving west of engine-shaft, is worth 5. per fathom. In the winze sinking below the 90, east of shaft, the lode is worth 4. per fathom. The lode in the 75, west of shaft, is worth 5. per fathom. The lode in the adit east is worth 4. per fathom. Owl Lode: The lode in the 40, north of Redditch's shaft, is worth 3. per fathom. The lode in the 20, north of shaft, is worth 7. per fm. The lode in the 10 north is worth 8. per fathom. The lode in the adit level, north and south of the cross-cut, is not out of the influence of the flood, which is still distorted by the same. The lode in the 62, west of the north shaft, on Pryor's lode, is worth 6. per fathom, and improving: according to the angle of the lode we think that it will go back under the Old Bounds shaft, which is an important feature, and will lay open a large piece of tribute ground. No change to notice in any other part of the mine.

SUMMER HILL.—W. Wasley, July 8: The ground in the south-west level, driving on the ore course, has got easier for driving the last 3 yards, and the flat looking very promising for the production of ore. I am glad to say that we are getting some fine lumps of ore from the level driving east of cross-cut, north of Hale's shaft, and the ground flat in the present end are looking promising for an improvement shortly.

TAMAR VALLEY SILVER-LEAD.—J. Goldsworthy, July 16: The adit level south is now completed to the engine-shaft. The men are engaged preparing the pumps, so that everything may be in readiness for the engineers. The carpenters are pushing on with all speed, and all surface work is in a forward state.

VIGRA AND CLOGAU.—W. J. Holman, July 16: In the stope east from No. 5 shaft, under No. 2 adit west, No. 2 mine, the lode is 7 ft. wide, and looks well. In the eastern end, from same shaft, the lode is 5 ft. wide, and has improved in appearance since last report. In the western end the lode is small, and the men from this place are now driving the eastern end. The lode in the drivage east is from No. 4 shaft is at the present moment rather narrow, and poor. In the western end the lode is nearly 3 ft. wide. In the bottom of No. 6 shaft the lode is from 3 to 4 ft. wide, and but 2 ft. of it is saving work, the rest being mixed up with slate and elvan. At Old Clogau the men are now attending to the winding of stuff from the bottom of the mine by the engine. At Vigras Mine, Jenny's adit is as usual. In consequence of our not having any water to turn the wheel, I have not been able to work up the gold ore now in stock.

WEST DEVON CONSOLS.—J. Richards, July 15: We have been clearing the adit level on the north lode, and in a day or two shall commence cutting down and enlarging the engine-shaft. The lode in the adit level is several feet wide in places, and very fine looking.

WEST MARIA AND FORTESCUE CONSOLS.—Wm. Skewis, Jas. Donnal, July 15: The men that have been employed on the Capel Tor lode are for the present kept at surface to assist in putting in the whim-engine. West Maria Lode: The 60 east is being driven by the side of the lode, and will be continued for another week, after which we shall take it down and report on its prospects and value. The lode in No. 1 stope in the back of this level is worth 8. per fm. The 50 east has not been driven for the month, as we thought it best to cut through the lode both to the north and south of the level; the north wall is reached, but as yet we no south wall; as far as seen the lode is 10 ft. wide, worth 40. per fm.—a splendid looking lode. The lode in the rise in back of this level is worth 30. per fm., and in No. 2 stope, 16. The lode in the 40 east is 4 ft. wide, worth 5. per fm., and showing strong indications for still further improvement. The lode in the stope in the bottom of this level is worth 8. per fm. The ground in the new shaft is much the same as stated in last report. No other change.

WEST PRINCE OF WALES.—W. C. Cock, July 14: The ground in the south engine-shaft seems a little firmer this week, but there is no change in the appearance of the lode. We are making good progress in cutting the plat in the 16, at the north shaft.

WEST WHEAL TOLGUS.—July 15: Taylor's sumpmen are now engaged in fixing the timber to carry the top plat, &c., at the 95 fm. level. The lode in the 95 west is 4 ft. wide, yielding 7 tons of ore per fathom, worth 35. per fm. The 85 west the lode is 4 ft. wide, unproductive. The lode in the 55 east is 5 ft. wide, looking better, and producing 4 tons of ore per fathom, worth 16. per fathom, and is promising for further improvement. In the 75 west the lode is 4 ft. wide, producing 1 ton of ore per fathom. The men are desuing the lode in the 65 and 50 fm. levels. We have four stope over the back of the 85 working by 24 men, at an average price of 31. 10s. per fathom. Each stope is worth as follows:—One 14t., one 15t., one 12t., and one 24t. per fathom; and we have one stope over the back of the 75 working by six men, at 27. 5s. per fathom; this stope is worth 14. per fathom. The lode in Richard's shaft, sinking below the 22, is 6 ft. wide, consisting of killas, blonde, muntic, quartz, and occasional stones of ore; the water in this shaft, thus far, is very little—about 8 or ten barrels in eight hours. The men are making good progress in sinking.

WEST WHEAL TREMAYNE.—S. Robert, July 14: We have no change to report since meeting the lode. We commenced driving the 32 fm. level with our shaftmen; we shall push the western end with all possible speed, and put the others to drive east and open a plat; that we may have room for a full core-drawing for horses, lander, and filler; we shall commence the winze in the bottom of the 20 as soon as it is drained enough to do so, which we think will be soon.

WHEAL AGAR.—E. Rogers, July 15: We are making a little better progress in sinking the flat-rod shaft; the ground is not quite so troublesome for breaking. The lode in the engine-shaft is just as last reported. Other places without change.

WHEAL BULLER.—J. Inch, J. Brown, July 15: Stevens's Shaft: The 92 east, on the south part of Stevens's lode, is 8 ft. wide—a very strong and kindly lode, worth for the 12. per fathom. A stope, stripping down on the south side of this lode, is worth for the 15. per fathom. The stope in the back of the 80, east of this shaft, is worth for tin 8. per fathom. The two stopes, east and west of Thomas's winze, under the 80, are worth 12. and 6. per fathom. The 60 east, on the north branch, has not been taken down for the last 6 ft. driven, but was looking well when last taken down for copper ore. The 50 east, on this lode, is producing stones of copper ore. Hocking's shaft is down 4 fms.; the lode in this shaft is 6 ft. wide, composed of peach, spar, tin, and copper ore, and has a very kindly appearance; sinking by six men and three boys, at 25. per fathom. The 80 east, on Stevens's lode, is producing stones of copper ore. The 80 west, on this lode, is large, and producing stamping work for tin. The 80 east, on the north lode, is producing tin, but not enough to value. The stope under the 70 west of the cross-course, on this lode, are worth for tin 12. per fathom. Two stope under the 60, east and west of Knuckey's winze, are worth 10. per fathom each. Nothing new in any other part of the mine.

WHEAL CREBOR.—J. Gifford, July 14: In the 120 west we are driving by the side of the lode; we intend cutting it into on Friday next. In the 120 east the lode is 2 1/2 ft. wide, composed of capel, quartz, with occasional spots of muntic and copper ore, but not to value. In the 108 fm. level ends

winze. This done, I purpose driving the 35 east by six men for one month, to make room for stowing the ore in the back of the level, west of the winze; so that, all well, I shall set this place on tribute, to begin June 29, after which I hope to make a small return of ore bi-monthly for some time. This place is now well ventilated, and in every way ready to be properly and inexpensively worked. The tribute pitch in the back of the 35 east is relet at £8. in 1/2, to two men. I have dressed about 4 tons of ore, of (say) 18 per cent., from the winze and the 25 fm. level east. The tributaries' ore will be about 10 tons of (say) 15 per cent., or (say) 150 units of copper. The whole will be ready for market next week. The engine and pitwork are working well. As a rule, I am not ready in giving my opinion about a progressive mine, but in this case no miner would hesitate to say that the lode is one from which good results might be reasonably expected.

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney to May 29, with reports from Lambton Colliery to the 19th. The sales of coal for the month of April amounted to 15,621 tons. The assistant superintendent states that "everything connected with this establishment goes on satisfactorily. We are getting our fair share of the trade."

Projected New Companies.

Company.	Capital.	Shares.	Each.
Langham Hotel.	£155,000	15,500	£10 0 0
Grass Valley Consolidated Mining Co.	125,000	12,500	10 0 0
William Mansfield and Co.	20,000	2,000	10 0 0
Argoed Hall Coal.	12,000	1,200	10 0 0
National Plate Glass Insurance.	2,000	1,000	2 0 0
West of France Rock Salt.	120,000	6,000	20 0 0
Milburn and Co.	30,000	30,000	1 0 0
Bank of Salvador.	200,000	10,000	20 0 0
Manganese.	12,000	1,200	10 0 0
Droitwich Salt.	125,000	12,500	10 0 0
Cloncurry Copper Mining.	100,000	20,000	5 0 0
Incorporated Assurance Society of Eng- land and Scotland.	100,000	40,000	2 10 0

DROITWICH SALT COMPANY, 125,000*l.*, in 10,000 ordinary shares of 10*l.* each, and 2500 preference shares of 10*l.* each. The objects are the acquiring and carrying on the business, property, and assets of the "Droitwich Patent Salt Company (Limited)" purchasing, converting, or erecting necessary buildings; renting, or otherwise providing vessels, trucks, and machinery; amalgamating with any other company, &c., in similar business; and raising additional capital on mortgage or on the issue of shares or debentures. The Memorandum is signed by J. W. LEA, J. P.; J. D. PERRIN, merchant, 5*l.*; and H. WHITING, 16*l.* all of Worcester; T. MORLAND, Eastcheap, 20*l.*; H. BARRETT, ironfounder, Beech-street, Barlican, 30*l.*; F. D. ZACHARY, Stourport, 32*l.*; and T. ZACHARY, Brooming Hill, near Stourport, 30*l.* The number of directors is to be from six to nine, the first being J. W. LEA; D. RUTTER, of Hillingdon; S. GREEN, of Clapham Park; H. BARRETT, F. D. ZACHARY, J. D. PERRIN, G. W. HASTINGS, barrister-at-law, Malvern; W. H. CLAY, Temple; and T. MORLAND, Director's qualification, 50 shares; remuneration—500*l.* per annum, divided as arranged by themselves; this may be from time to time varied by the company in general meeting.

CLONCURRY COPPER MINING, 100,000*l.*, in 20,000 shares of 5*l.* each.—The objects are to purchase on terms agreed on (but not stated) lands, with mines, buildings, machinery, &c., in Queensland; to acquire other lands in the colony, to work or seek for mines discovered, or to be discovered; to sell or convert into metal, copper or other ores; to sell or lease land or mines; to construct tramways or railways in the colony, and generally, &c. The Memorandum is signed by S. A. BECK, Ironmonger's Hall, solicitor, 10*l.*; J. HENRY, Haslemere, landowner, 200*l.*; E. A. PONTIFEX, Shoe-lane, engineer, 10*l.*; B. H. PEARSE, Great Winchester-street, merchant, 100*l.*; R. TAYLOR, C. E., Queen-street-place, 200*l.*; J. C. RICHARDSON, Swansea, merchant, 10*l.*; and P. M. TAYLOR, Queen-street-place, 10*l.* Number of directors, five to seven; qualification, 100 shares; remuneration, 500*l.* per annum. First directors—Messrs. J. TALOR, L. COURTAULD, R. TAYLOR, B. H. PEARSE, E. A. PONTIFEX, J. HENRY, and S. A. BECK. The first managers are to be Messrs. J. and R. TAYLOR, whose remuneration is to be fixed by the directors.

GRASS VALLEY MINING, 125,000*l.*, in 12,500 shares, of 10*l.* each.—The objects are the acquiring and disposing of mines and mineral rights and prospects, and of land, buildings, machinery, &c., in California, U.S., or elsewhere, and treating or selling ore, and the doing, &c. The Memorandum is signed by J. C. HOY, Kensington, barrister, 10*l.*; W. O'C. SYDNEY, Lancaster-gate, 10*l.*; F. N. GIBSON, Strand, electrician, 10*l.*; R. GAMBLE, Kensington, 10*l.*; G. BEADNILL, Lieutenant-colonel, 10*l.*; S. GREVILLE, Junior United Service Club, 10*l.*; and M. KING, Northaw, 10*l.* Number of directors, three to seven, exclusive of manager; first directors, subscribers to Memorandum; qualification of future directors, 100*l.* nominal capital; remuneration, 600*l.*, with 300*l.* additional when 10 per cent. per annum dividend is paid, and a further 300*l.* additional when 15 per cent. The directors may, if 90,000*l.* be paid to bankers by shareholders within four months, sign agreement to purchase for the company of W. O'C. SYDNEY certain mines, mineral rights, and lands, with plant and machinery thereon, situated near Grass Valley town, for 110,000*l.*—35,000*l.* in fully paid shares, and the remainder in cash. W. O'C. SYDNEY is to be managing director, at a salary of 100*l.* per year for which 5 per cent. shall have been paid out of profits.

ARGOED HALL COAL, 12,000*l.*, in 1200 shares of 10*l.* each.—The objects are—the purchase of the lessee's interest in the Rhdy-y-Galed and Argoed Hall Estates, containing about 230 acres, situate at Mold, Flintshire, with the plant, stock, rights, &c. The Memorandum is signed by LEWIS WILLIAMS, Chester, 100*l.*; W. HOPWOOD, Trydym, Flintshire, 10*l.*; E. POWELL, Holt, near Wrexham, 50*l.*; E. HOPWOOD, Trydym, Flintshire, 50*l.*; J. PARRY, Liverpool, 5*l.*; R. JONES, shipbroker, Liverpool, 1*l.*; WM. MANLEY, Liverpool, 1*l.* The amount of purchase-money is to be determined on between the directors and the lessors. The first director of the company is to be Mr. R. J. JONES; the first manager, Mr. W. HOPWOOD; and the first secretary, Mr. W. JONES.

THE YUDANAMUTANA COPPER MINING COMPANY OF SOUTH AUSTRALIA.—Intelligence has been received from the superintendent (per telegram, dated Galle, July 14), to the effect that "the richest seam this world has ever seen has been cut—richer than Burra Burra." Beyond this telegram the directors have not received any further information of this important discovery. The promptness with which the fact was announced to the shareholders cannot be too highly commended, and it is to be hoped that satisfactory results will accrue, for few companies have had greater vicissitudes or more exceptional drawbacks.

CHONTALES.—Up to late last evening the Post Office authorities had not received any portion of the advices from Greystown, hence the letters from the Chontales Mines had not been delivered.

THE PENMORFA SLATE AND SLAB COMPANY.—The details of the first general meeting are reported in another column, from which it will be seen that the operations are satisfactorily progressing, and that with the expenditure of a further small amount of capital progressively profitable results will be realised.

WEST DEVON CONSOLS.—From the proximity of this property to Devon Great Consols its operations are watched with considerable interest, and according to the opinions of the practical authorities who have inspected the mine there seems a well-grounded confidence that success will attend its development.

The long desiderated AUSTRALASIAN EXTRACT OF MEAT AND CATTLE COMPANY has at length been determined upon, and the unanimously warm support vouchsafed in its favour by not only most of the leading Australian colonists now at home, but also by several eminent scientific and professional notabilities at home, the latter being strongly impressed with the conviction that the most beneficial results must eventually flow from its establishment. The marked success, under unusually extraordinary difficulties, which Liebig's Extract of Meat Company has met with, even in its preliminary operations, in the River Plate territories of the Argentine Republic, has fortunately paved the way for the establishment of similar undertakings in other parts of the world, but more especially in our Australasian colonies, where the squatters and inland stock farmers are quite at their wits end what to do with their cattle, beyond simply boiling them down for the value of their tallow. The principle so successfully introduced by Prof. Liebig is as yet merely in its infancy, and there is ample room for its speedy development in such a country as Australia on the most extensive scale, not only with great benefit to the squatters and stockholders, by whom its introduction will be hailed as an incalculable boon, but also to the people of the United Kingdom, where food supplies have been lately, and are now so, much curtailed. Liebig's Extract is now sold by a majority of the chemists and druggists in London and the provinces, and its comparatively high price alone checks the consumption. The highly nutritious qualities of the Extract, especially for invalids, are now well known, and are uniformly recommended by our leading physicians to their aged and other patients suffering from debility and weakness, and in some cases life has been prolonged through its beneficial qualities and almost exclusive use, for some months after all reasonable hope of prolonging life had gone. Beyond the manufacture of the Extract, it is intended to embrace other different objects, in order to utilise the entire carcase of all the animals slaughtered in the company's establishments, such as preserving and packing the sound and prime portions of the meat for export to England, and selling it there in a perfectly fresh condition, at prices which will prove an immense boon to our population, and at the same time realise remunerative returns to the company. Glue and Gelatine will also be manufactured on an extensive scale for export and local consumption. The company is already registered, and the prospectus will, probably, be issued next week. The capital is 100,000*l.* only, in 40,000 shares, of 2*l.* 16*s.* each, one-fourth to be reserved for the Australasian colonies, and the remainder for distribution in England, 25,000*l.* of which have already been applied for here, which speaks well for the success of the undertaking, and indicates that the investment is likely to be a popular one.

The United Merthyr Collieries Company (Limited) liquidators (Messrs. Dixon and Cope) have declared a dividend of 1*l.* in 1*l.* upon the debts, payable July 17, at the offices of Messrs. Cope and Harris.

* * * With last week's Journal we gave a SUPPLEMENTAL SHEET, which contained:—Original Communications: On Accidents in Coal Mines, and Suggestions for Preventing them—the North Staffordshire Coal Field—King's Patent Safety-Cage—the Shropshire Coal Field—Mineral Wealth of South Africa—the Gold Fields of South Africa—the Management of Gold Mines—Lead in the South Wales Mineral Basin—Mineral Properties: Modes of Working—Public Securities as an Investment—British Mining, and its Prospects—Preparation of Magnesia employed as Refractory Material—Caron's Parachute Slack Block—New Great Consols—New Beldon Lead Mine—Interesting Mineral Workings—Mining in the Ferran District—Chontales Gold and Silver Mines—St. John del Rey Mines—the Solar System Geologically Considered—Direct Communication between England and India.

7*l.*; North Crofty, 1*l.* to 1*l.* Great Retallack, 3*l.* to 3*l.*; the lode in No. 2 shaft, sinking below the 30, is 15 in. wide, producing stones of lead; the 30 north is 2 feet wide, with good silver-lead, and letting out more water; the winze in advance of this end is worth 1*l.* to 1*l.* ton of good silver-lead per fm. North Downs, 17*l.* to 22*l.*; North Retallack, 3*l.* to 4*l.*; Emily Henrietta, 33*l.* to 35*l.*; North Treskerby, 10*l.* to 12*l.* 6*l.*; Providence, 22*l.* to 24*l.* Port Phillip, 30*l.* to 35*l.*; a dividend of 1*l.* per share has been declared. The gold produce for April was 2083 ozs., and for two weeks in May 1120 ozs. South Frances, 18*l.* to 20*l.*; West Chiverton, 60*l.* to 62*l.*; West Frances, 24*l.* to 26*l.*; West Seton, 19*l.* to 20*l.*; Wheal Bassett, 62*l.* to 65*l.*; Wheal Chiverton, 15*l.* to 20*l.*; Wheal Grenville, 28*l.* to 30*l.*; Wheal Mary Ann, 20*l.* to 22*l.*; Wheal Seton, 62*l.* to 67*l.* Great Wheal Vor, 15*l.* to 16*l.*; the 19*l.* fm. level has been driven west of shaft 14*l.* fm.; the lode in the present end is 3 feet wide, worth 40*l.* per fm.; this is an important point, as the ground is whole to the 17*l.*; the 216 cross-cut, north of Metal shaft, is expected to intersect the lode in about 7 fms. more driving; No. 2 winze, below the 20*l.*, is driven 6 feet, and worth 100*l.* per fm. Yudanamutana shares have advanced to 2*l.* 3*l.*; a circular has been issued to the shareholders this day (Friday), containing copy of telegram received on the 15th, dated Galle, July 14:—"Have got richest seam the world has ever seen, richer than Burra Burra." Beyond this the circular states the directors know nothing. Much dissatisfaction has been expressed among the shareholders that the information received on the 15th was not communicated to them before the 17th. Cook's Kitchen, 10*l.* to 11*l.*; at the meeting, on Wednesday, the accounts showed a profit of about 500*l.* on the quarter; the mine is looking well. Chontales shares have been up to 2*l.*, but leave off 1*l.* to 2*l.* The mail has arrived, but up to this time (4:30) the letters have not been delivered. Bedford Consols, 10*l.* to 15*l.*

The Market for Mine Shares on the Stock Exchange, during the week, has been inactive, and prices have been rather drooping; the only exception has been in Yudanamutana shares, which, on the issuing of a special circular, have risen to 3*l.* 3*l.*, and are very firm and scarce. The mail from Chontales has arrived with a small remittance of gold, (say) about 500*l.* In the early part of the week shares were firm, and up to Thursday stood at 2*l.*, but declined subsequently to 2*l.* Don Pedro, 2*l.* to 3*l.* prem.; Rossa Grande, 2*l.* to 3*l.* prem. Del Rey shares close very firm, with an upward tendency, at 18*l.* to 18*l.* Port Phillip, 1*l.* 9-16ths to 1*l.* British Mines have been dealt in to a very limited extent. Great Laxey, 16*l.* to 17*l.*; Great Wheal Vor, 15*l.* to 15*l.* West Chiverton shares are in demand at 60*l.* to 62*l.* Chiverton Moor, 6*l.* to 7*l.*; Prince of Wales, 33*l.* to 35*l.*; Gian Alun, 6*l.* to 7*l.* 6*l.* In new companies, Cornwall Hematite shares are quoted nominal 1*l.* to 1*l.* prem.

At the Swansea Ticketing, on Tuesday, 3802 tons of ore were sold, realising 33,042*l.* 16*l.* The particulars of the sale were—Average standard for 9 per cent. produce, 91*l.* 4*l.* 6*l.* 6*l.*; average produce, 17*l.*; average price per ton, 11*l.* 15*l.* 10*l.*; quantity of fine copper, 47*l.* tons 7 cwt. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Per unit.	Ore copper.
June 9.	1250	£96 1 0	11 <i>l.</i> 6 <i>l.</i>	£8 7 0	11 <i>l.</i> 4 <i>l.</i> 6 <i>l.</i>	£71 16 0
9.	3435	93 12 6	12 <i>l.</i> 2 <i>l.</i>	9 0 0	14 1 <i>l.</i> 2 <i>l.</i>	70 12 0
July 14.	2802	91 4 0	17	11 15 10	13 10 <i>l.</i>	69 7 0

Compared with the last sale, the decline has been in the standard 2*l.* 8*l.*, and in the price per ton of ore about 8*l.* 2*l.* Compared with the corresponding sale of last month, the decline has been in the standard 4*l.* 16*l.* 6*l.*, and in the price per ton of ore about 16*l.* 4*l.*

At East Pool Mine meeting, on Monday, the accounts showed a credit balance of 466*l.*, and a profit on the two months' working of 34*l.* A dividend of 32*l.* (2*l.* 10*l.* per share) was declared.

At North Jane Mine meeting, on Tuesday (Mr. T. Hamilton in the chair), the accounts showed a debit balance of 25*l.* 18*l.* 6*l.* A call of 1*l.* 6*l.* per share was made.

At East Chiverton Mine meeting, on Tuesday (Mr. J. F. Elwell in the chair), the accounts showed a debit balance of 40*l.* 7*l.* 4*l.* A call of 1*l.* 6*l.* per share was made.

At Par Consols Mine meeting, on July 7, the accounts for four months ending April showed a debit balance of 31*l.* 3*l.* 7*l.* 10*l.* It was resolved that, "In consequence of the present unpromising state of the mine, it is expedient to give the proper notices to the lords to stop the works."

At New Pembroke Mine meeting, on July 7, the accounts for four months ending April showed a debit balance of 5*l.* 9*l.* 9*l.* 10*l.* A call of 3*l.* per share was made. Capts. Francis Puckey and John Puckey recommend that a new perpendicular engine-shaft be sunk to intersect the present lode in the 6*l.* or 7*l.* fathom levels, and from thence be continued sinking on the course of the lode. We estimate the outlay required in the purchase of an 80*l.* cylinder engine and pitwork, building engine-house, &c., and sinking the shaft, will be about 350*l.*, or (say) from 10*l.* to 12*l.* per share; but as the engine and pitwork will cost about 150*l.* of this sum, the plant of the mine will be increased in value to that extent, and the actual expense be reduced to (say) about 200*l.*

At the Ohio (Isle of Man) Mining Company meeting, at Douglas, on Wednesday (Mr. W. Stewart in the chair), the directors' report stated that since the company commenced operations a sum had been sunk nearly 5*l.* below the 10*l.* but an influx of water had compelled them to drop sinking. As the cost of manual labour in drawing the water was almost equal to that of sinking, the directors had deemed it prudent to suspend operations until the new wheel was erected. There had also been driven 15*l.* fms. to the south, and in the course of this drivage some splendid ore ground was cut through. The directors had also had erected new 30*l.* water-wheel, with pumping and drawing gear, at a cost of 210*l.* A water-course, measuring 650 yards, including 235 yards of water-boxes, has also been erected, and the wheel and all the machinery connected therewith are all in working order. A new lift of pumps is now being put into the shaft, which is expected to be laid in a day or two, when sinking can be immediately resumed. The report

owing to the peculiar combination of the gold with other metals, and the fluctuations in the yield throughout the mass, deduct (say) 3 to 5% of an oz., giving an average yield of 1 oz. per ton, which will, when in full operations, leave a fair margin of profit, but to what extent at present it would be premature on his part to state until a fair trial had been given.

THE MINERAL AND METAL TRADES OF DENMARK.—The fiscal falling off under the head of metals was almost exclusively in iron and iron goods, especially rails, sleepers, and plates. The duty paid was nearly 10 per cent. less than in the previous year. The only increase was in steel rods and miscellaneous iron and steel manufactured, the last from 13,606,424 lbs. to 14,630,426 lbs. Of the raw metal 17,829,271 lbs. was from England, and of 547,152 lbs. of chains and anchors England sent 488,987 lbs. In 1865-66 rails and sleepers came almost exclusively from England. Last year France had outstripped us by sending the larger half of all the imports of these articles. Of the miscellaneous iron goods, as in 1865-66, about five-sevenths came from England, one-fifth from Hamburg, Lubeck, and the Duchies. Zinc, lead, tin, and yellow metal fell off from 1,320,868 lbs. to 1,218,346 lbs.; yellow metal (112,540), for ships, bolts, and plates, came exclusively from England. It should be mentioned that Denmark has no iron deposits that can be profitably worked. Of other metals traces are found in Bernholm.—Miscellaneous: Of other articles, the imports of oils, salt, wine, hides, and salt fish increased; while coal, spirits, colours (dyers'), hops, and salt herrings fell off. According to Mr. Petre's estimate, in his report for July 1865, the average coal import for the five preceding years was 309,200 English tons. In 1866-67 the amount was about 347,100 tons, nearly the quantity imported in 1861, but this advance of 12 per cent. was compensated (as far, at least, as Denmark was concerned) by an increase of 13 per cent. in the export, which in 1866-67 was 49,723 English tons. All this coal, except one-seven-hundredth part, comes from England, one-sixth of it, or 50,000 tons, is registered as re-exported to England, presumably as fuel for steamers. No coal worth mention is worked in Denmark, and Bornholm yields annually 3000 tons of bad secondary coal; and a little brown coal may be obtained with difficulty from the bottom of the turf of the West of Jutland. The imports show that Denmark is a large buyer of foreign manufactures. Being poorly provided with the materials of industry, not all the painstaking and prolonged efforts of her statesmen have availed to make her a manufacturing country. The votaries of the protective system have only succeeded in inflicting on Denmark some of the waste inseparable from the expensive production at home of commodities which could be bought cheaper and of better quality abroad.

THE SALT TRADE IN BAVARIA.—The manufacture of salt having for centuries past been carried on in Bavaria on an extensive scale, and the Government having up to the present time exercised a monopoly both in the production and sale, considerable interest attached to the new Zollverein convention. During the year 1866, which may be taken as an average year, the quantity of salt of all descriptions produced at the various salt mines and salt works belonging to the Bavarian Government was 981,573 Zollverein centners (110½ lbs. avoirdupois each), and the net revenue derived by the State from the produce of these establishments was about 275,000L sterling. Under the stipulations of the new convention, the customs union excise duty to be charged on refined salt manufactured in the States of the Union is fixed at two Prussian dollars, or three Bavarian florins and a half (6s. 9d. sterling) per Zollverein centner (of 110½ lbs. avoirdupois); but no duty is to be levied on common or unrefined salt intended for cattle feeding or other agricultural purposes. It is expected that from circumstances arising out of the altered state of things the consumption of salt in the North German States will considerably increase. As regards its effect on the immediate interest of the consumers of salt in Bavaria, it appears that the result of the abolition of the monopoly, and the throwing open of the manufacture of salt to the general industry of the country, combined with the scale of taxation as laid down by the convention, will be to reduce the price of refined salt by about 9d. sterling per cwt., and that of salt for cattle feeding by about double that amount as compared with the prices established by the Government tariff under the system of monopoly. It is also expected that another advantage of effect of throwing open the manufacture of salt to private enterprise will be that of a great improvement in the quality, especially as regards the salt required for agricultural purposes, which is represented as having been so inferior under the system of Government monopoly that many farmers preferred paying the higher price, and making use of refined salt for those purposes. The general result of the new measure concerning the manufacture and taxation of salt would, therefore, appear to be, as regards Bavaria, that whilst the exchequer of the State will be no great loser, and possibly no loser at all, the salt-consuming public will be decided gainers.

RAILWAY WAGON WORKS, BARNESLEY.
MESSRS. G. W. AND T. CRAIK
ARE PREPARED TO
SUPPLY COAL AND COKE WAGONS
OF EVERY DESCRIPTION,
Either for cash, or by deferred payments through wagon-leasing companies.

WAGONS PROMPTLY REPAIRED.

COAL WAGONS.

RAILWAY WAGONS, capable of CARRYING SIX TONS OF COAL, TO BE LET by the MONTH or YEAR, upon favourable terms. Address, B Box, Post-Office, Hereford.

LOCOMOTIVE TANK ENGINES FOR MINES AND COLLIERIES.

HENRY HUGHES AND CO., FALCON WORKS, LOUGHBOROUGH,
Have ALWAYS IN PROGRESS, and can SUPPLY at short notice,
TANK ENGINES

To suit any gauge of railway and gradients from 1 in 16.

THE BEVERLEY IRON AND WAGON COMPANY (LIMITED),
MANUFACTURERS OF RAILWAY WAGONS, WHEELS
AXLES, LORRIES, CARTS, WOOD WHEELS, &c.,
IRONWORKS, BEVERLEY, YORKSHIRE.

PIG LEAD.

MESSRS. WESTON AND COLLINGBORN SOLICIT ORDERS for SOFT PIG LEAD, which they are producing of the very best quality. Prices on application.
WORKS, SWINFORD, GLOUCESTERSHIRE.
OFFICE, 18, PETER STREET, BRISTOL.

SLATES.

WALNEY SCAR QUARRIES,
SITUATE NEAR CONISTON OLD MAN.
For particulars and samples of these very durable green and grey slates address "Manager," Walney Scar Slate Works, Broughton-in-Furness.

COAL CUTTING MACHINERY.—The WEST ARDSLEY COMPANY having, by recently patented improvements, perfected their coal cutting machinery, worked by compressed air, are NOW READY TO MAKE CONTRACTS for the CONSTRUCTION and USE of their MACHINES.

The results of twelve months' experience in the working of these machines, by the West Ardsley Company, have proved most satisfactory, their use being found to CHEAPEN the COST and IMPROVE the average SIZE of the COAL, to LIGHTEN the LABOUR, and also to MODIFY the SANITARY CONDITION of the MINE.

All communications to be made to MESSRS. FIRTH, DONISTHORPE, and BOWER, No. 8, Britannia-street, Leeds.

NOTICE.—The WEST ARDSLEY COMPANY, having reason to believe that their patents are being infringed upon, hereby give notice that they will TAKE LEGAL PROCEEDINGS AGAINST ALL PARTIES who may MAKE FOR SALE, or USE ANY MACHINERY in the construction of which any such INFRINGEMENT is MADE.

Contract for Coals for Singapore.

CONTRACT DEPARTMENT, ADMIRALTY, SOMERSET HOUSE.



THE COMMISSIONERS for Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, do hereby give notice that, on TUESDAY, the 21st instant, at Two o'clock, they will be READY to TREAT with such persons as may be WILLING to CONTRACT for SUPPLYING and DELIVERING into store at Singapore, TWO THOUSAND FIVE HUNDRED TONS OF SMOKELESS SOUTH WALES COALS,

Fit for the service of Her Majesty's steam-ships and vessels.

A form of the tender and conditions of contract may be seen in the lobby of the Storekeeper-General's Department, Admiralty, Somerset House. No tender will be received after Two o'clock on the day of treaty, nor will any be noticed unless the party attends, or an agent for him duly authorised in writing.

Every tender must be addressed to the Secretary of the Admiralty, and bear in the left-hand corner the words "Tender for Coals for Singapore," and must also be delivered at the Department of the Storekeeper-General, Admiralty, Somerset House, accompanied by a letter signed by two responsible persons, engaging to become bound with the person tendering in the sum of £25 per cent. on the value for the due performance of the contract.

By order, ANTONIO BRADY,

Registrar of Contracts and Public Securities.

Contract Department, Admiralty, Somerset House, July 7, 1868.

Contract for Iron Tubes.

CONTRACT DEPARTMENT, ADMIRALTY, SOMERSET HOUSE.



THE COMMISSIONERS for Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, do hereby give notice that on TUESDAY, the 28th July inst., at Two o'clock, they will be READY to TREAT with such persons as may be WILLING to CONTRACT for SUPPLYING and DELIVERING into store at Her Majesty's several dockyards, all such quantities of

IRON BOILER TUBES AND STAY TUBES

As may from time to time be ordered under a contract for twelve months certain, and afterwards until the expiration of three months warning.

The annual expenditure for the last three years may be ascertained, and a form of the tender and conditions of contract may be obtained on application at this department. No tender will be received after Two o'clock on the day of treaty, nor will any be noticed unless the party attends, or an agent for him duly authorised in writing.

Every tender must be addressed to the Secretary of the Admiralty, and bear in the left-hand corner the words "Tender for Iron Tubes," and must also be delivered at the Department of the Storekeeper-General, Admiralty, Somerset House, accompanied by a letter signed by two responsible persons, engaging to become bound with the person tendering in the sum of £500 for the due performance of the contract.

By order,

ANTONIO BRADY,

Registrar of Contracts and Public Securities.

Contract Department, Admiralty, Somerset House, July 15, 1868.

Contract for Scotch Pig Iron.

BY ORDER OF THE SECRETARY OF STATE FOR INDIA IN COUNCIL.



NOTICE IS HEREBY GIVEN that the DIRECTOR-GENERAL OF STORES FOR INDIA will be READY, on or before Monday, the 20th July, 1868, to RECEIVE PROPOSALS in writing, sealed up, from such persons as may be willing to SUPPLY—

SIXTY-SIX TONS OF SCOTCH PIG IRON FOR MADRAS.

And that the conditions of the said contract may be had on application, addressed to the Director-General of Stores, India Office, Westminster, S.W., where the proposals are to be left any time before Two o'clock P.M. of the said 20th day of July, 1868, after which hour no tender will be received.

GERALD C. TALBOT, Director-General.

A MECHANICAL AND MINING ENGINEER, of considerable experience, is ENGAGED TO GO OUT TO SPAIN, and, whilst there, would be happy to UNDERTAKE any MATTERS of ENGINEERING or INSPECTION.

Letters to be addressed "Engineer," under cover to F. Cookson, 95, Gracechurch-street, London.

WANTED, a THOROUGHLY PRACTICAL MAN, to take the ENTIRE CHARGE (including sales) of COLLIERY in DERBY-SHIRE, where the output is expected to be about 100,000 tons per annum.

Address, stating salary required and references, "D.," care of Kennedy & Co., Advertising Agents, Manchester.

WANTED, by a Young Man recently out of his Articles with a Mining Engineer, a SITUATION, either as COLLIERY MANAGER or ASSISTANT in a MINING ENGINEER or SURVEYOR'S OFFICE. Is thoroughly and practically acquainted with colliery work and management in every department, also surveying, &c. Salary moderate; references on application.

Apply to "X. Y. Z.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED, a SITUATION as LAND and MINERAL SURVEYOR. Testimonials, &c., on application to "H. J.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED, a SHARPENER of CAST-STEEL TOOLS in a SLATE QUARRY, in LANCASHIRE. Address, stating age, wages, and references, to Mr. EDDY, Skipton, Yorkshire.

WANTED, FOUR THOUSAND POUNDS, upon SECURITY of an EXCELLENT COLONIAL COLLIERY.

Apply, with real name and address, to J. H. HOWARD, Esq., solicitor, Quality-court, Chancery-lane.

WIRE ROPE.—WANTED, a CONSIDERABLE LENGTH of SECOND HAND WIRE ROPE, for FENCING PURPOSES, to be delivered at Hitchin, on the Great Northern Railway.

Address, with particulars, "H. T.," Post-Office, Ampthill.

VALUABLE LEAD AND COPPER MINING PROPERTIES in RHENISH PRUSSIA, FOR SALE.

For particulars, apply to O. J. YOUNGHUSBAND, Esq., Wiehl, Kreis-Grembsbach, near Cologne, Prussia.

TO BE DISPOSED OF, a going SLATE and SLAB QUARRY, realising profit, situated FESTINIOG, covering TWO HUNDRED AND TWELVE ACRES, Crown royalty.

For particulars, apply to T. DODD, Esq., No. 5, Moore-chambers, Moorefields, Liverpool.

FOR SALE,—A FIRST-CLASS SECONDHAND 8-horse power PORTABLE STEAM-ENGINE, of recent construction, by eminent makers.

NEW PORTABLE STEAM-ENGINES, from 5 to 25-horse power, of the highest order, on advantageous terms. Prize Medals awarded—Hamburg, 1863; Paris, 1867.

Apply to BARROWS and STEWART (late Barrows and Carmichael), Engineers, Banbury.

HANGSMAN'S HILL IRON MINING COMPANY.—Notice is hereby given, that the SECOND ANNUAL GENERAL MEETING of the shareholders will be HELD at the Rising Sun Inn, Barnstaple, Devon, on TUESDAY, the 28th of July inst., at Twelve for One o'clock precisely.

JOHN HARPER, Manager.

Dated West Down, Devon, 13th of July, 1868.

1, King's Arms-yard, Moorgate-street, London, July 13, 1868.

C. GRAINGER, Secretary.

1, King's Arms-yard, Moorgate-street, London, July 13, 1868.

THE AUSTRALIAN MINING COMPANY (Incorporated under Royal Charter).

Notice is hereby given, that the TWENTY-THIRD ANNUAL GENERAL MEETING of the shareholders of this company will be HELD at the London Tavern, Bishopsgate-street, E.C., on MONDAY, the 27th inst., at One o'clock P.M. precisely.

To receive the report, accounts, and balance-sheet for the past year.

To elect directors in lieu of Colonel George Palmer, who retires by rotation, and to fill up the vacancy caused by the lamented death of James Anderton, Esq.

To fix the remuneration of the auditors for the past year.

To elect auditors for the present year.

GEORGE PALMER, Chairman.

U. P. HARRIS, Secretary.

1, Coleman-street-buildings, Moorgate-street, London, E.C., July 11, 1868.

ESTABLISHED 1844.

GREAT BRITAIN MUTUAL LIFE ASSURANCE SOCIETY.

101, CHEAPSIDE, LONDON, E.C.

EMPOWERED by Special ACT OF PARLIAMENT, 25th and 26th Vic., cap. 74.

Terminating annual premiums and sums assured payable during life.

PECULIAR ADVANTAGES OFFERED TO POLICY HOLDERS BY THIS SOCIETY.

The profits applied—first, in extinguishing the premiums AT A GIVEN DATE, and afterwards in making the policy PAYABLE DURING LIFE; this important advantage being secured without the payment of any additional premium.

ANDREW FRANCIS, Secretary.

ESTABLISHED MORE THAN HALF A CENTURY.

THE TAVISTOCK FOUNDRY, IRONWORKS, AND HAMMER MILLS,

which have been carried on for more than half a century by

MESSRS. GILL AND CO.,

and obtained a

HIGH REPUTATION FOR

SHOVELS AND OTHER TOOLS,

as well as for

ENGINEERING AND FOUNDRY WORK.

have been purchased by

MESSRS. NICHOLLS, MATHEWS, AND CO.,

BEDFORD IRONWORKS, TAVISTOCK.

For thirty years Messrs. N

THE COLORADO GOLD AND SILVER MINING COMPANY (LIMITED).

Capital £100,000, in 50,000 Shares of £2 each.

Deposit £1 per share, viz.—10s. to be paid on application, and 10s. on allotment. Future calls not to exceed 5s. per share, and at intervals of not less than three months. Discount will be allowed to shareholders paying in full.

TRUSTEES.

CHARLES MORRIS, Esq., 45, South-street, Grosvenor-square. JOSHUA NUNN, Esq., Deputy Consul of the United States, No. 1, Dunster-court, E.C.

DIRECTORS.

E. G. FELLOWE, Esq., Surbiton, Surrey.

W. S. FERGUSON, Esq., Brixton, Surrey.

CHARLES MORRIS, Esq., 45, South-street, Grosvenor-square.

J. F. QUARTLY, Esq., Home Park House, Hampton Wick.

LEONARD WRAY, Esq., Eagle Lodge, Ramsgate.

BANKERS.

METROPOLITAN BANK (LIMITED), 75, Cornhill, E.C.

SOLICITORS.

MESSRS. SUTTON and OMMANNEY, Coleman-street, E.C.

AUDITORS.

MESSRS. REDERICK B. SMART, SNELL, and CO., 85 and 86, Cheapside.

SECRETARY—Mr. W. L. ALLEN.

OFFICES.

160, GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.

ABRIDGED PROSPECTUS.

This company has been formed for working a cluster of rich mines near Empire City, in the territory of Colorado, United States.

They contain 7000 ft. of lodes, irrespective of 5000 ft. of tunnels, from which many thousand tons of ore have been raised and worked at a large profit.

There are also two water-powers for mill sites, from which a constant supply of water is obtainable throughout the year.

The company has entered into an agreement, dated the 18th day of June, 1868, under which the titles to the said mines and water-powers will be conveyed to this association by transfers from the original locators, which will be valid and indisputable.

The following is a schedule of the mining property to be so conveyed to this company, which is situated in the upper Union district, Clear Creek county, Territory of Colorado, United States.

SCHEDULE OF MINING PROPERTIES.

One tunnel claim for 5000 ft., known as the Ohio Tunnel, at the base of the Eureka Mountain, near the line of Empire City—	Feet 5000
said tunnel driven in and timbered 80 feet from point of commencement	Feet 5000
And 7000 ft. of lode mining claims, situated upon the following veins:—	
Uncle Sam lode	400
Nebraska City lode	200
General Scott lode	400
Pummis lode	300
Fairview lode	400
Cabin lode	1800
Brownling lode	400
Whiting lode	1500
Mountain lode	400
Squatter Sovereignty lode	900
Buckeye Silver lode	200
M'Cauley lode	100— 7000
Total	Feet 12,000

And two distinct and separate water-powers upon Bard Creek, directly south, and adjoining Empire City, each water power includes 250 feet on the stream, and 250 feet from the stream upon each bank as mill sites. The two water-powers are continuous.

The State of Colorado is a little west of the Mid-Continent of America, between latitude 37° and 41° north, and longitude 102° and 110° west, comprising an area of about 112,000 square miles. It contains a population of more than 30,000 persons exclusive of Mexicans and Indians.

It is but little known in Europe, although it has been yielding enormous mineral treasures since 1859.

From a recent work of Mr. O. J. Hollister, the "Mines of Colorado," (1867), it appears to have been estimated by the Government that from 1859 until 30th day of June, 1866, the said mine produced \$37,294,122 in bullion.

The position of Colorado is the most advantageous of the great metallic zone of America, the climate being temperate, the district having abundance of useful timber, water-power, and good pasture for cattle, &c., all the year.

The sets of this company were all selected by J. P. Whitney, Esq., Commissioner from the United States of America (Colorado Territory) to the Paris Exposition, and the district in which these mines are situated has already produced over \$4,000,000.

The ore from Colorado obtained the first Gold Medal at the Paris Universal Exposition of 1867, as a reference to the last awards will show.

This company proposes to work the ones obtained from their mines by reducing the metals to a "regulus," or "matt," to be forwarded to Swanson (England). By this means the company will obtain nearly all the metals contained in the matrix, will sell their produce in the best market, and receive larger and quicker returns than by any other method.

The total cost of raising and smelting the ores from these mines, and preparing the same for Swanson for sale, will not, it is calculated, exceed £17 per ton, while the lowest produce, or the selling price thereof, may be estimated at £54, leaving a net profit of £37 per ton upon each ton of regulus smelted at Swanson, while in many cases a much higher rate of profit may be fairly expected.

All monies subscribed will be laid out in the development of the property of the company, and it is estimated that upon an expenditure of about £50,000, large profits will be obtained.

There is an abundance of coal and wood fuel to be procured at a cheap rate in Colorado. The coal is a good bituminous lignite; the price of which will be about 5s. per ton at the pit's mouth, and to this 5s. per ton may be added for conveyance to the works.

The Articles of Association will give the directors all necessary powers for mining, working, and smelting ores, and for all other safe and desirable operations that may be deemed advisable.

Applications for shares may be addressed to the directors, and to the bankers of the company, in the form annexed to the prospectus, and should no allotment be made, the deposits paid will be returned in full.

An agreement for the purchase of the property for the sum of £40,000, to be paid in fully paid-up shares of £2 each, has been entered into, dated the 30th day of June, 1868, between Jackson Barwise, of Grove-lane, Camberwell, in the county of Surrey, mining engineer, of the first part, and Charles Morris, of South-street, Grosvenor-square, and Joshua Nunn, of the American Consulate Office, Dunster-court, Mincing-lane, both in the county of Middlesex, Esquires, trustees on behalf of the company, of the second part.

By order, W. L. ALLEN, Secretary.

N.B.—Copies of various printed papers, fully corroborating all the statements contained in this prospectus, may be obtained at the offices of the company.

THE NEW BELDON LEAD MINING COMPANY (LIMITED).

Capital £10,000, in 10,000 shares of £1 each

(Of which over 2000 shares are already taken).

Incorporated under the Companies Acts, 1862 and 1867, by which the liability of shareholders is limited to the amount of their shares.

Deposit on application £5 per share, and £5, on allotment; the remainder subject to calls of £5 per share, at intervals of not less than three months.

Applicants not receiving an allotment will have their deposits returned without deduction.

DIRECTORS.

MAJOR THOS. COOKE, 13, Westbourne Grove-terrace, Bayswater, W. H. GROSVENOR CLENCH, Esq., Lavender-hill, Surrey, S.

Capt. CHARLES BORLASE, Raleigh Club, W. G. DESMAINE, Esq., Bolton Abbey, near Skipton.

WALLACE JAMES HARDING, Esq., Barrister-at-law, Middle Temple, E.C.

BANKERS.

The National Provincial Bank of England, Bishopsgate-street, London, E.C.

SOLICITORS.

MESSRS. BUTLER and J. E. SMITH, 17, East Parade, Leeds.

SECRETARY.

MR. ROBERT W. SMITH.

OFFICES.

15, FINSBURY PLACE SOUTH, MOORGATE STREET, LONDON.

The mining property belonging to this company is situated near Blanchland, in the Township of Newbiggin, in the western division of the Royal or Manor of Bulbeck, in the county of Northumberland, and is held under a lease from H. C. Silvertop, Esq., for a term of 49 years, with the option of renewal, commencing on the 22nd day of August, 1859, and ending on the 22nd day of August, 1908, at a minimum yearly rent of £100, redeemable out of the royalty or dues of £1-15s, extending over the term of the lease.

The property comprises a surface area of about 1700 statute acres, commencing near Baybridge, and running west to the north boundary by Riddlehaw's Hope, and is bounded on the east by a brook called the Readon Burn; on the south-west by a river called Beldon Burn, which divides the counties of Northumberland and Durham, and falls into the River Derwent, within the boundary of the property; and on the west by a stream called the Cross Beldon Burn.

The Sheldon Mines, which now belong to the Derwent Mining Company, are immediately adjoining to Readon Burn, and have been worked for several hundred years. Large quantities of ore have been and are now being raised from the lower stratum of the Old Sheldon, New Sheldon, Fellgate, and Standalone veins (all of which run through this company's property in maiden ground, for a distance of upwards of two miles to the west). A few miles further to the west are the Allenhead Mines, belonging to W. B. Beaumont, Esq., M.P., which are said to be the richest mines in the kingdom. Two of the above-named veins running through this company's property have been worked in these mines, and have been very productive. There are also several north and south veins which traverse this property for a distance of from two to three miles, intersecting all the nine or ten east and west veins nearly at right angles. One of the north and south veins, called Burnsheldhaugh, has produced large quantities of ore a short distance to the north of this grant.

The former proprietors have made considerable progress in developing the mines, having sunk two shafts (a drawing and an engine shaft) to the depth of 60 fms., or to the bottom of the great limestone. They have erected a water-wheel with the requisite pumping apparatus; and have also laid down crushing and dressing machinery of superior quality and modern construction.

At the depth of 26 fms, the Sheldon Shields vein was cut, and ore of the value of £2000 was raised in a short time, realising a profit of upwards of £600. This vein now stands 4 ft. wide, and is very productive.

The late proprietors having developed the mines and erected the requisite machinery, as above explained, at a cost of upwards of £10,000, were unable to pro-

ceed with the working of the mines owing to the want of capital. They have, therefore, disposed of the property, including machinery, plant, &c., to this company on the following reasonable terms—£2250 to be paid to them in cash, and 2000 paid-up shares to be allotted to them. The £2250 will be devoted by the late proprietors to paying off the balance of their debts, a large part of which consists of arrears of rent, which may be hereafter worked out by this company in royalty according to the terms of the lease, as above stated.

In addition to the property above described, the company will have the option of purchasing, on the most reasonable terms, another tract of mining ground in the neighbourhood (comprising several thousand acres) equally valuable.

It is a well-known fact that British mines, carefully selected, are one of the safest and best-paying investments; 21 of such mines, having, on an outlay of £452,825, returned in dividends the enormous sum of £6,136,541.

Copies of the Memorandum and Articles of Association, the plan of the property, and specimens of the ore, may be seen at the company's office, 15, Finsbury Place South, Moorgate-street, E.C.

Applications for shares should be made at once, as the directors will proceed to allot forthwith, in order of application.

Prospectuses and forms of application for shares may be obtained from the secretary, at the offices of the company, or of the solicitors.

Now ready, roan tuck, gilt edges, price 6s. (postage 4d.),

WEALE'S ENGINEERS', ARCHITECTS', AND CONTRACTORS' POCKET-BOOK FOR 1868.

Considerably improved, with many additions, and Eight Copper Plates.

"There is no work published by or without authority, for the use of scientific branches of the services, which contains anything like the amount of admirably arranged, reliable, and useful information. It is really a most solid, substantial, and excellent work; and not a page can be opened by a man of ordinary intelligence who will not satisfy him that this praise is amply deserved."

Army and Navy Gazette.

"We cordially recommend the book to the notice of the managers of coal and other mines; to them it will prove a handy book of reference on a variety of subjects more or less intimately connected with their profession. It might also be placed with advantage in the hands of the subordinate officers in collieries."

Colliery Guardian.

"We cordially recommend the book to the engineering and architectural professions generally."

Mining Journal.

LOCKWOOD AND CO., 7, Stationers' Hall-court, E.C.

NOTICES TO CORRESPONDENTS.

COPPER QUOTATIONS—"B. and L." (Mainz).—Considering how long the copper market has been depressed, we are glad to inform "B. and L." that the prices quoted in last week's Journal were absolutely correct. If "B. and L." succeed in purchasing at the prices they name they were certainly fortunate; the quotations published, and to which we adhere, being those generally ruling in the market, and those at which most of the few transactions on Friday took place. So far from the improvement in price being prejudicial to the German mining interest, it is positively advantageous, as many owners of German mines are only waiting an improvement of (say) 5s. per ton in the price of copper to ask for English capital for putting German mines to work. It appears that the Grasslitz mines in Hungary, which could supply the present consumption of Germany, would give good profits with copper in London at only 8s. per ton. "B. and L." may at all times depend upon the accuracy of the metal quotations given in the Journal; indeed, it is so generally acknowledged that in many, both lead and copper, mining districts the miners and smelters agree to fix the price of the ore by the *Mining Journal* quotations.

COPPER ORE PRICES—"B. and L." (Widnes).—1. The 4s., returning charges is per ton of ore, and is deducted from the standard.—2. The smelter pays for all the copper in the ore, but the price per unit varies with the produce, because the lower the produce the more ore has to be treated to get a ton of copper: if 14s. 4½d. were the value of 11½ per cent. ore, 10s. 9½d. per unit would probably be the full worth of 9½ per cent. ore. The price per unit will also vary if valuable or objectionable ingredients other than copper be contained in the ore.—3. No basis giving any useful information on the subject is obtainable. Dr. PERROT's "Metallurgy" is published by Mr. Murray, of Albemarle-street.—4. The cost of six months protection for an invention is about 107. It is always preferable to apply to a respectable agent, as inventors usually make their patents when secured by themelves worthless, through neglect of certain necessary formalities. Patent agents do not charge fees for an opinion as to the patentability of an invention.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, JULY 18, 1868.

THE MINES ASSESSMENT BILL.

The withdrawal of Mr. PERCY WYNNDHAM's Mines Assessment Bill leaves metalliferous mines free from local rates for at least one year, and it may be hoped that ere that period has elapsed the mines of Cornwall and Devon will be in a more prosperous position, to enable them to bear any additional burden it may be considered just to impose upon them. The efforts made during the past week by the representatives of the mining interest have been most praiseworthy, and were doubtless not without influence in bringing about the withdrawal. An influential county meeting was held at Truro, on Monday, presided over by Mr. T. S. BOLITHO, and attended by Messrs. J. F. BASSETT, H. and B. WILLYAMSON, WARINGTON SMYTH, P. P. SMITH, and others, at which the Chairman explained that the sub-county committee upon the Bill had met upon several occasions, and had had frequent communications with the members upon the subject. As the amended Bill, however, very nearly met their views, it had been thought unadvisable to call the general committee together. To their great surprise, however, the House of Commons had cut out the whole of the Bill, and had put in a clause by Mr. AYRTON, simply rating all mines in a most vague and unsatisfactory manner. Letters from the several Cornish members were read to the meeting and the greatest satisfaction was expressed with regard to the trouble and care they had taken in the matter. Mr. P. P. SMITH said that Mr. BOLITHO, Mr. CORNISH, and himself had spent two hours the other day in drawing up an amendment which they thought necessary to provide for the peculiar circumstances of Cornwall. That amendment set forth that the rating should be upon the royalty, toll, or due, or other payment reserved and made payable. The Bill as it stood contained nothing to guide the assessment committees. Mr. DEEBLE BOGER pointed out the difference between rating the dues actually paid and those which might be estimated. He also read the form of a petition to the House of Lords, praying that if the Bill were not amended in the form desired—by providing for the assessment of actual dues—it should be rejected. The petition explained the peculiar conditions under which metallic mining was carried on in the county. Mr. WARINGTON SMYTH thought it was rather dangerous to approve of a clause which did not give a satisfactory basis to the rating. He held that the clause would place them in a position of very great difficulty with regard to many of the mines. Unless the actual royalty were taken adventurers might be overwhelmed by a calculation of possible royalty.

That it would be altogether impracticable for the Bill to be carried into effect in its mutilated form, without materially injuring one of our most important industries, was felt by all parties, and it was the unanimous feeling of the Truro meeting that the only satisfactory remedy for the evil was to get the Bill restored to the form in which it stood previously to July 8. However, upon the subject again coming before the House of Commons, the unanimity as to the undesirability of enacting so vague a measure as Mr. AYRTON's was so complete that there was really scarcely any alternative but to

lastly, by the action of soft discs, turning in combination with a grinding material. The three first can only be employed upon soft material, those of Garrett and Marshall and Jones and Levick being specially intended for coal mines. And, thirdly, there are the mixed machines, such as that of Messrs. Beaumont, in which there is a central chisel, for making a hole for gunpowder to remove the core.

After pointing out the disadvantages attending the use of gunpowder, Mr. Fellot directs especial attention to the machine of Capt. Penrice, and gives a succinct account of the experiments which have been made with it, and he mentions that the Patent Tunneling and Mining Machine Company are prepared to guarantee with the 5-ft. machine a progress at the rate of 4 yards an hour, and since that date (June 29) a progress of more than 6 yards per hour has been made in the hard limestone in those quarries, so that the operation of the machine must be considered thoroughly satisfactory.

"DYNAMITE"—THE NEW EXPLOSIVE AGENT.

A large and influential party of gentlemen connected with mining, engineering, quarrying, &c., were present by invitation of Mr. NOBEL, the inventor of Dynamite powder, at a series of very interesting experiments on Tuesday. The party were conveyed by special train from Charing Cross to Merstham, near Redhill, Surrey, close to which station, in a grey limestone quarry, the operations were carried out. Amongst those present we noticed the following gentlemen, besides many others who are well known in the mining and engineering profession:—Sir Charles Fox, Professor Noad, Messrs. P. F. Nursey, Jehu Hitchens, C. Williams, A. E. Walton, M. Greene, G. H. Cardozo, and several gentlemen, owners of quarries in Wales, who were anxious to see the powder in operation. Its appearance, Dynamite strongly resembles coarse brown sand, and is perfectly harmless under ordinary circumstances. A cartridge containing 3 or 4 ozs. was set light to, and it simply burnt out, without any noise or unpleasant smoke or smell. A box containing 10 lbs. of the powder was then placed on a raging fire with a similar result, the powder simply burning away. Another box containing 10 lbs. was then thrown from the top of the cliff, and fell upwards of 60 ft. with no more result than if a box of sand had been thrown. Mr. Nobel having thus proved that neither fire nor concussion could cause it to explode, proceeded to show its power as an explosive compound, previously explaining that the percussion cap on the end of the fuse contained a very strong fulminating powder. A small cartridge containing $\frac{1}{2}$ oz. of the powder was placed on an oak plank 2 in. thick and 5 ft. long; it was exploded, and the plank had a hole knocked completely through it, and was split about two-thirds of its length. The next test showed its extraordinary power to a still greater extent. About $\frac{1}{2}$ lb. of the powder was placed loosely on the top of a boulder of granite which weighed about $1\frac{1}{2}$ ton. A small portion of sand was placed over the powder to confine the explosion; the result was that the boulder was split into pieces, in this instance the damage being around the spot fired, not immediately under it, as when exploded on wood.

An iron cylinder was next operated upon; it was 1 ft. high, 11 in. across, and had a bore-hole of 1 in. diameter completely through it; in this bore-hole $\frac{1}{2}$ lb. of the powder was placed, without any plug or tamping; the result of the explosion was terrific; the piece of iron was cut completely in half, one half being hurled upwards of 30 yards up a steep bank. The bore-hole, on examination, showed a most peculiar result—in the centre it was enlarged fully $\frac{1}{2}$ inch, while at the bottom end it was contracted and twisted. The iron seemed to be of first-rate quality. The next object operated upon was a wrought-iron armour-plate, $\frac{1}{2}$ inch thick. The canister containing the charge was made of tin; the weight of the charge was $4\frac{1}{2}$ lbs., and the result was that portions of the tin case were forced into the iron plate, completely riddling it, and the plate broken into several pieces. Mr. Nobel then proceeded to experiment on the rock of the quarry. A bore-hole had been sunk 15 ft. into the solid rock, and 22 ft. from the edge; about 12 lbs. of the powder was used as a charge; the report was not much, but the result showed that the rock was broken up in a radius of over 20 ft., much to the delight of the quarrymen who inspected it afterwards. Other experiments followed, one being a small cartridge, containing 2 ozs. of the powder, which, it was shown, could be very advantageously used as a signal of distress.

At the close of the experiments, Sir Chas. Fox expressed the thanks of all present to Mr. Nobel, for the way in which the experiments had been carried out, and the very gratifying results. Dynamite, in his opinion, could be used in every operation where an explosive was necessary, and it had been proved that water had no injurious effect upon it; by its use underground there would no doubt be a great saving, and he fully believed that railway companies might carry it with great safety. Mr. Nobel (who received quite an ovation), in thanking those present for their kindness, said that it was his intention to draw up a programme of experiments, which he intended to send to the different railway managers, for their suggestions and approval; on receipt of those suggestions he would appoint an early day for the trials, and he had no doubt but he should be able to convince them that Dynamite was a perfectly safe article of merchandise. A question had been put to him as to the amount of smoke or vapour evolved after an explosion in a mine level. He might state that after an explosion the smoke was a mere nothing; but if the powder were simply burnt it gave out a nitrous vapour, which was not of a nature to do much harm. The powder used on this occasion had been made upwards of fifteen months. The proceedings, which had been of a most satisfactory character throughout, then terminated, and the party returned to town, pleased and instructed by the trip.

COAL ON THE KISTNAH, MADRAS.

In the *Mining Journal* of April 25 we gave some information as to the correspondence which has appeared in the *Athenaeum and Daily News* of Madras, between Major APPLEGATH, of Madras, and Dr. OLDHAM, the superintendent of the Geological Survey of India, respecting the alleged existence of coal seams on the banks of the River Kistnah. We then merely cited a letter by Major APPLEGATH, from which it was made to appear that on this subject some erroneous conclusions had been arrived at by the Indian Geological Survey; that, notwithstanding official reports to the contrary by Dr. OLDHAM, coal deposits were in this place in actual existence, and that coal by Major APPLEGATH had here been actually quarried and burnt.

It would appear that some misunderstanding as to the locality must have made an appearance of contradiction in the statements of the respective correspondents, otherwise it seems difficult to reconcile in any way the information and unmistakable intimations contained in Dr. OLDHAM's reply to the Major's letters. In this reply Dr. OLDHAM says—"I went very carefully over all the ground indicated by Major APPLEGATH. I went to every spot he had spoken of in his reports. I several times asked whether there was anything else he specially wished me to see. I saw the very place from which he stated he had raised the coal, but I did not see one single instance of an outcrop of either coal or shale; I did not see one single instance of a burnt outcrop. Such are easily recognised; they had been stated to occur, and were looked for, and had they existed I think they must have been seen. I have to express my extreme regret that if Major APPLEGATH did see 'six places of outcrop of burnt shale or coal on the banks of the Kistnah,' he did not point out at least one of them on the spot rather than now assert their existence."

Dr. OLDHAM's interest must, as a matter of course, be in favour of finding any valuable and profitable mineral deposit in India, and we are prepared to hear him say that "no one would be more thoroughly delighted than himself to find the existence of coal established in the place referred to, either by Major APPLEGATH or anyone else."

THE MINERAL INDUSTRIES OF THE UNITED STATES.—The last issued Consular Reports state that all kinds of coal have been low throughout the year, in consequence of the depressed state of the manufacturing business, and the limited demand for consumption. The imports show a falling off of 3347 tons from Great Britain, 38,593 tons from the provinces—this mainly owing to the tariff adopted on the cessation of the Reciprocity Treaty,—and an increase of 3854 tons from domestic parts. English cannel has been sold during the year by the quantity at \$17 to \$19 per ton, and the highest and lowest

prices of anthracite and provincial coal have been:—Anthracite, 1867, \$7.50 to \$11.50 per ton; 1866, \$9 to \$15. Sydney and Pictou, 1867, \$7.50 to \$9.25 per ton; 1866, \$7.50 to \$9.50. Copper of all kinds shows a decline of fully 25 per cent. The highest and lowest prices of Scotch pig-iron were \$50 and \$40 respectively in 1867, and \$57 and \$44 in the preceding year. The price of common bar-iron ranged from \$85 to \$110 in 1867, against \$110 to \$120 in the preceding year.

THE COPPER TRADE.—At the meeting of the Swansea Harbour Trustees, on Monday, under the presidency of Mr. STARLING BENSON, the Chairman of the Trust, the official return of the trade of the port for the past month, and also of the first six months of the present year, was produced. The readers of the *Mining Journal* know full well that Swansea is the great seat of the copper trade, something like four-fifths of the entire ores imported into the kingdom being sent to Swansea. The returns presented to the Trust bear out the remarks made in last week's Journal as to the long-depressed state of the copper trade, also the reasonable prospect of a revival of that trade before long. We find from the returns that whilst there was a slight decrease in trade for the first six months of the present year, as compared with the corresponding period of last year, the trade of the past month of June was one of the best in the previous history of the port, arising from the very large arrivals of copper ores from the West Coast of South America, and of calamine, or zinc ores, from the Mediterranean. Mr. PASCOE ST. LEGER GRENFELL, of the Upper and Middle Bank Copper Works, and Chairman of the Finance Committee, in moving the adoption of the report, alluded to the satisfactory state of the trade during the past month, and remarked that, although the copper trade was still much depressed, and there had not been that revival which was generally expected some month or two since, yet the importation of ores was now increasing, and he believed the legitimate trade of Swansea would soon return. One of the principal reasons why the importations of ore had fallen off in the port of Swansea was the fact that shippers found that cargoes of wheat paid better freights than ores. Some 100 or 200 tons of ore or regulus were taken in as ballast, and the remainder of the cargo was wheat; and vessels so laden were sent to Liverpool, there being no granaries in Swansea. However, freights in the copper trade were now again rising, and, as a consequence, the importations of ores into Swansea were increasing. The report of the committee was unanimously adopted, and it is satisfactory to find that such a staple trade as that of the copper, giving employment to so many thousands, is (although at present much depressed) soon likely to revive again.

EXPORTS OF RAILWAY IRON.—The exports of railway iron from the United Kingdom in the first five months of this year were on a very considerable scale, having amounted to 233,769 tons, as compared with 199,287 tons in the corresponding period of 1867, and 203,552 tons in the corresponding period of 1866. The greater part of the increase in the exports arose from the large shipments made to the United States, the total quantity of railway iron sent to the great American Republic to May 31 this year having been 112,608 tons, as compared with 57,299 tons to the corresponding date of 1867, and 43,666 tons to the corresponding date of 1866. The shipments of railway iron to Russia have, thus far, somewhat fallen off this year. British India took to May 31 this year 42,818 tons of railway iron, against 45,151 tons to the corresponding date of 1867, and 38,891 tons to the corresponding date of 1866. British America also consumed 5616 tons of our railroad iron to May 31 this year, as compared with 2818 tons to the corresponding date of 1867, and 8879 tons to the corresponding date of 1866. Upon the whole, it be seen that this year's figures are decidedly favourable.

COAL CUTTING BY MACHINERY.—Although the efforts that have been made to apply machinery to the cutting of coal have not yet been attended with complete success, the results actually obtained have offered sufficient encouragement for inventors to persevere in the same direction. One of the earliest labourers in the field was Mr. JOHN STURGEON, of Bolton-le-Moors; and he has just patented some improvements in opening out or driving headings, which promise to be of considerable importance. In doing this kind of work it is usual first to undercut or hole a certain portion of the work for the required width of road, and to cut nicks vertically at each end of the undercut portion, in order to break away and remove the material. According to his present invention he so arranges the machinery for cutting the nicks as to give them a curvilinear or arched direction upwards, instead of cutting them in a straight perpendicular line. By this means, when the material is broken out, as above stated, the sides of the drift or cutting will be left of an arched form, thereby affording a better support to the roof than if the sides were left perpendicular to the base or floor of the mine. For this purpose he carries the cutter or cutters (whether pick-acting, slotting, or otherwise) on a frame which is capable of turning round on a central axis, arranged in such manner that, when a gradual feed motion is imparted thereto, as the work proceeds the cutting is elevated, and at the same time caused to travel in a circular arc. To enable the machine to be moved easily from place to place when the rails are not used, and in making drifts, he provides on the frame of the machine pins, on which suitable rollers can be put on and taken off as required. When the machine is arranged to be worked or guided on rails, he shapes round, bevels off, or bends upwards the ends of the guides in such a manner as to enable them to pass freely over any inequalities in the setting of the rails. And he also provides at each end of the guides projecting forks or jaws, arranged to receive small rollers, which may be readily slipped into their places in bearings formed by the said jaws, so that the machine may rest on the rollers and not on the guides whenever it is required to move it rapidly by hand along the rails. When actuating picks by means of a lever, he provides a slot or hole in the axis on which the pick is mounted; in this slot or hole one end of the lever arm is arranged to slide, and the other end is connected to the piston-rod, so that as the piston-rod moves to and fro it is enabled to maintain its parallelism throughout the stroke, by causing the lever-arm to slide in or out of the slot or hole, thus adjusting itself to the motion.

MINERS' SAFETY-LAMPS.—The invention of Mr. THOMAS STORY HORN, of Newcastle-upon-Tyne, relates to a means of obtaining an increased amount of light and more perfect combustion in miners' safety-lamps than has hitherto been obtained, whereby little or no unconsumed carbon or soot is deposited in or upon the lamp, and the lamp is rendered, moreover, thoroughly in explosive, and the light is immediately extinguished should the lamp by accident or otherwise be overturned. This invention has reference also to an improved lock for fastening all the parts of the improved lamp together. In constructing a safety-lamp according to this invention the base of the lamp forms the receptacle for the oil, having a tube in the centre for the insertion of the wick or lamp cotton and for feeding or supplying the lamp with oil. Above this receptacle and permanently attached to it there is an air chamber perforated round the circumference for the admission of air horizontally at a point below the point of combustion. The top plate of this air chamber is also perforated with very fine holes for the admission of the air to the combustion chamber which surrounds the wick, and is formed of metal, of a dome or other shape, having an aperture at the summit through which the wick can pass. This metal dome is fitted by a bayonet joint, screw, or other means into a metal ring or flange, which flange has formed on its outer or upper surface an annular groove for the reception of a glass chimney which is cemented therein. By the use of the dome the air for supporting combustion passing through the air chamber from below impinges on the flame at the point of combustion, rendering such combustion more complete, and, therefore, affording increased light. The dome also acts as an extinguisher should the lamp be either overturned by accident or otherwise, the light in that case immediately dying out. The products of combustion pass up the glass chimney through a contracted aperture in a metal cone fitted thereon, and becomes diffused by escaping through small perforations in a copper cap fitting on the glass chimney. This cap and also the dome may be readily removed when necessary for the purpose of cleaning the glass chimney. A guard of metal or other suitable material may, if desired, surround the apertures in the circumference of the air chamber, and serve as a protection against any sudden gust, blow, or outburst of gas or air interfering with the steadiness of the light. As a protection to the glass chimney from

breakage, a wire cage is placed on the exterior so as to surround the same. With a view to locking the lamp there is drilled in the top rim and bottom flange an aperture which extends also into the solid part of the side of the air chamber, the drilling being, of course, in a line so as to admit of a steel rod passing through from top to bottom. On the top rim there is riveted a metal tongue, which is bored to admit of a screw bolt, and on the top cover there is riveted another and larger piece of metal having a slot for the passage of the former piece, this larger piece being also bored partially through for the passage of the said screw bolt. This bolt is so fixed as not to be capable of entire withdrawal. On bringing the cover down, the metal tongue enters the lock on the cover, and the bolt is then screwed by a key through both pieces, thereby locking the lamp; the cover by covering the head of the steel rod keeps it in place, and the lower end of the steel rod by passing through the lower flange into the solid piece below prevents the base from being unscrewed.

MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY,

Patent Agent and Adviser, Memb. Soc. Arts, Assoc. Soc. Eng.

Mr. HENRY GREENE, of King William-street, has specified a patent for a safety-lamp for reading and night purposes. The lamp consists mainly of an ordinary stand and oil reservoir or candle-holder with chimney, in addition to which a vertical tube is fixed to the side of the lamp, and passes within the chimney. This tube has a slot or groove cut for about an inch in length from the top, and on each edge of the groove, on the top of the tube, a small projection, or stop, is formed. Within this tube a vertical rod, or stem, is placed, having at its lower extremity a small handle at its upper end, being extended from the tube by a curved arm reaching to the centre of the lamp, and serving to hold a dome, or extinguisher, fitting the top of the burner. To light the lamp the stem is raised by the handle till the arm escapes from the slot. The stem is then turned so as to remove the extinguisher to the side of the burner; but to put out the light the handle and stem are turned till the arm comes over the slot, when the extinguisher extends suddenly on the burner, and puts out the light.

Mr. RICHARD HOWSON, of Middlesborough-on-Tees, has obtained letters patent for a gas furnace, which, according to his invention, he proposes to construct with a hollow hearth, somewhat like that of an ordinary reverberatory furnace, with one or more flues leading to a chimney. In the crown of the furnace, immediately over the hearth, is placed a pipe or casing, by means of which the gas is introduced through one or more perforations opening downwards; and in the same casing is placed one or more nozzles, through which air is blown under pressure through the aforesaid perforations. The effect of this arrangement is that each jet of air causes an induced current of gas to be projected downwards upon the material lying in the hearth, while the air is at the same time intimately mixed with the gas, so that the result is the production of an intense heat in the chamber of the furnace.

Among recent applications for patents are the following:—J. D. BRUNTON, Kentish-town, tools and machinery, or apparatus for cutting slate and other rock; ARCHIBALD MUNROE, of Arbroath, and W. B. ADAMSON, of Glasgow, manufacture of iron and other metallic substances.

The Sutro Tunnel, for mining purposes, is attracting the attention of scientific men in America. Mr. SUTRO has just published a work on the mining resources of the United States.

REPORT FROM SCOTLAND.

JULY 15.—There was no change in our Pig-Iron market of any consequence since the relapse till Monday, when more firmness was manifested in prices, with the likelihood of their continuing to better, as it was not expected that the ironmasters would yield the demand of the miners for increased wages. One or two ironmasters may give in—Coltess, Clyde, and Monkland are mentioned (Clyde is reported as having given the advance)—but it is expected that the majority will hold on to present rates, as the highest prices the market value of pigs will allow them to pay the colliers for their labour, consequently speculators are now resting on their oars, waiting the course of events. On Monday, business was done at 52s. 6d. cash, and 52s. 9d. a month. On Tuesday, 52s. 8d. cash was realised in a firm market, closing sellers 1d. higher. To-day very little business was done, and prices a shade easier, closing 52s. 7d. buyers, sellers 52s. 8d. prompt cash, 52s. 10d. a month; No. 1, g.m.b., 53s.; No. 3, 51s.; Coltness, 59s.; Gartsherrie, 57s.; Glengarnock, 55s.; other brands, 6d. under last week. The shipments of the week are short, being only 9260 tons, against 11,670 tons in the corresponding week of last year; but the next two weeks of 1867 were very light, and are expected to be more than equalled by the same weeks this year. The market closes tomorrow for the week, on account of the fair holidays, but will open again, nominally at least, on Monday, not much business generally being done before the succeeding Tuesday or Wednesday. The imports of pigs from Middlesborough till date exceed 54,000 tons. The limited demand for finished iron keeps steady—stabled, no doubt, by the large consumption of plate and angle iron now going on in the Clyde, and which is keeping the larger makers from entering into competition with the smaller makers for the specifications of miscellaneous iron, which are being offered in small quantities, both for warehouse and shipments. The specifications for the two new steamers, to be built by Messrs. Caird and Goy, Greenock, for the Bremen and Baltimore trade (noticed last week), have been given out. The competitors were the Mossend and Blochairn Companies, and report gives the contract to the former, but of this we do not speak with certainty. These, however, are two works who could best execute the order in all its variety. Foundry, as well as brass and copper workers, are not fully employed generally. The following are the current quotations:—First common bars, 7l.; second ditto, 6l. 10s. to 6l. 15s.; plates (ship), 8l. to 9l.; boiler, 9l. to 16l.; rails, 6l. 12s. 6d. to 7l.; pipes, 4l. 17s. 6d. to 7l.

Coals remain without the slightest change either in price or demand, the immobility of the one involving the immobility of the other. The Wishaw slate coal masters, in order to avoid a collision with the men, last week conceded an advance of 6d. per day per man, in the hope that they would recover it again by an increase in prices. There are fears that this will not be easily achieved, as the whole of the Airdrie district still resists the advance; and the proprietors of the Aitkenhead Colliery, in that neighbourhood, have warned the miners out of their houses who are not content to work at present rates. As is the colliers, we have been informed, are not working much over two days a week; and the demand is of the most limited description, or else there would have been a dearth of coal throughout the country. The shipments for the week amount to 26,255 tons, against 24,500 tons in the corresponding week of last year, but the home consumption is on the most limited scale. In the Wishaw and Glasgow districts the slate coal masters are reported as having given an advance of 6d. a day, which the Union have accepted in the meantime, pending further agitation for another advance of 6d. per day, the miners agreeing amongst themselves to contribute a week to support those out of employment, so as to prevent them offering their services at the reduced rates. All depends now upon the action of the ironmasters. If they damp out their furnaces for a month the advance would have to be withdrawn, *sine die*. The miners connected with Govan Ironworks met last night, after making two unsuccessful attempts to see their manager, and to-day left their granite, unless an advance of 1s.—not 6d., as in the other cases—per day is granted, Mr. McDonald promising the married men 10s. a week and something for each child while on strike; and the young men were requested to find work elsewhere, so that the strike may be said to be inaugurated. What if they have inaugurated a period of sorrow and privation for themselves? The colliers in connection with Coltness and Wishaw Ironworks are also reported on strike, and the Shotts men are expected out-to-day. On Monday a meeting of the Ayrshire miners was held at Hurford, when the reports from the collieries in the districts showed that the men were in favour of working their "warning;" and while their fortnight was running out they were to solicit an advance of 1s. a day on current wages from their employers. A Mr. Alten was dispatched from Wishaw, at the desire of Mr. McDonald, to announce that the Lanarkshire miners had received an advance of 6d. a day, and urged them to strike for an advance of 1s. a day; this, of course, was an easy matter, and they afterwards adjourned to the 20th inst., to see how far the motion had been acted on. Much yet remains to be done; and it is difficult, after weighing all the aspects of the question, to say whether, after all, we shall escape a strike.

There are several mineral properties and one or two oil works in the market for public and private sale.

An iron sailing ship, of about 1100 tons register, was launched a few days ago for Hargrove, Ferguson, and Co., Liverpool, named the River Indus. The British General Steam Navigation Company's Clyde-built paddle steamer Juno was tried between the Cloc and the Cumbray lights, on Monday, and attained a rate of 14.9 knots per hour. This speed being 9-10ths of a knot beyond that contracted for, the owners adjudged the builders entitled to the

premium of £600, provided for in the contract. The dimensions of the Juno are—Length, 260 ft.; breadth, 30 ft.; depth of hold to main deck, 15 ft. Its engines are on the oscillating principle, cylinders 66 in. in diameter and 72 inches stroke, the contract speed, with 175 tons dead weight on board, being 14 knots per hour.

Last week a very costly metal bridge across the Dee, at Kirkcudbright, was opened with all customary formality and display. The cost of the bridge was £10,000, £3000 of which were raised by subscription, £2000, by means of a bazaar, and the remaining £5000, were granted by the road trustees. Mr. H. J. Wylie was the engineer, and the contractors were Messrs. Hopkins and Gilkes, of Middlesbrough.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

JULY 16.—The Iron Trade of both districts of this county continues steady, and in North Staffordshire is almost brisk. Prices are low, and even with the reduction of wages ironmasters say profits will be very fine; but there is a decided improvement, and if workmen at the present low wages can get nearly full employment they will be far better off than before wages were reduced, when they were making scarcely half-time. The thick coal miners have accepted the reduction of wages without a struggle.

A very interesting entertainment took place at the Exchange, Wolverhampton, on Monday last. Four years ago Mr. Rupert Kettle, Judge of the Worcestershire County Courts, accepted the difficult position of umpire in a plan of arbitration adopted by masters and men connected with the building trades of Wolverhampton. Mainly by his ability, tact, and painstaking efforts the project has so far succeeded, and since that time men and masters have arranged to their mutual satisfaction every condition of employment as to hours, &c., and wages, avoiding strikes, and enabling masters in taking contracts to calculate for a year beforehand what rate of wages they will have to pay. Mr. Kettle, in an admirable pamphlet, noticed on the occasion of its publication in the *Mining Journal*, described the principles and mode of operation of this plan of arbitration, and it appears that he is to inaugurate a similar system at Leeds to-morrow (Friday). The success of the attempt at Wolverhampton was celebrated on Monday. There was a procession with bands and banners, and a dinner at the Exchange, at which Sir John Morris, the deputy-mayor, presided, the Earl of Lichfield, who has taken great interest in the relations between employers and employed, and Mr. Kettle, being also present. Workmen and masters shared the speeches, one of the former proposing the health of Lord Lichfield, as Lord-Lieutenant of the county, and in the name of the workmen thanking him for his interest in their welfare. His Lordship, in reply, expressed his preference for a system of conciliation instead of arbitration, as the latter supposed a dispute which the former might be the means of altogether preventing from arising. Mr. Kettle, in responding to the toast of his health, said that they had already succeeded in establishing, by mutual agreement between masters and men, the settlement of the terms of future contracts for one year, including the rate of wages, and they were going to try to fix the rate of wages for three years. He stated, as the result of his experience as umpire, that he had only on one occasion had to give a vote as arbitrator. The results of this attempt to settle disputes without ruinous contests is very gratifying, and, perhaps, it would be ungracious in the hour of so much justifiable triumph, to state any possible sources of future difficulty. It must, however, be remembered that as a few hours notice on either side terminates an engagement between master and workman, the strictly legal operation of the arrangement is limited to that period, and that the observance of the agreement not to alter wages for a year depends mainly on the sense of honour on both sides, in case the men had a distinct prospect of obtaining more, or the masters of getting men at lower rates. Suppose wages to rise, with a good demand for men in several large towns, there is nothing to prevent workmen from leaving Wolverhampton and going there. Again, there is some danger of the public having to pay for a close monopoly, established by this joint union of masters and men, and it will be a nice question how the lesser masters, who may work themselves, and have a few hands, may be reached if they decline to join. These are points worth remembering before we are quite sure that we have reached the millennium of peace between the payers and the receivers of wages.

Mr. Josiah Tildesley, jun., brassfounder of Willenhall, was on Monday fined 40s., and costs, for neglecting to register "a young person" in his employ, and paid costs in three other cases of infringement of the Factories Act. It was shown that a person who made articles at fixed prices for the defendant employed and paid the wages of the boys, but it was held that Mr. Tildesley was responsible. There is a good deal of complaint about the necessity of having a medical certificate for every boy who works, which certainly seems stretching precaution very far. In Birmingham a request that a lacquerer might be allowed to adopt the hours of 7 to 7, instead of from 6 to 6, for his work, so as to finish goods at once before they tarnish, has been treated at the Home Office and by the Inspector of Factories with some considerable amount of "cold shoulder." There is also a good deal of dissatisfaction at the exemption of persons employing less than 50 persons from any restraint, for the Workshops Regulation Act is a dead letter. With trades so diversified as those of South Staffordshire and Birmingham it seems almost necessary that legislative regulation should be less stringent, and more universally applicable. The worst cases of excessive hours in the little shops are now really exempt from interference, whilst the large and generally well regulated establishments are strictly tied to minute regulations. There is a danger of reaction from straining this interference too far.

An important action, entered at the last Spring Assizes, at Stafford, and referred to arbitration, has been just concluded. Mr. Millar, the plaintiff, is a coalmaster at West Bromwich, and the defendant are Mr. J. Bagnall and Mr. R. Bagall, extensive proprietors of ironworks and mines in South Staffordshire. The former has mines adjacent to, and in the deep part of, those of defendants, and alleged that he had suffered damage, which he put at £3,000, through their pumping for a number of years pumped out water from one of their mines into their Thelk Coal Hollows, whence it flowed into his colliery. Both collieries were affected by a greater part of water called the Crook Hay Pound, and the defence was—first, the water pumped by defendants did not pass into plaintiff's workings, and that even if it did it only went into the Crook Hay Pound, from which the defendants were pumping constantly 20 times as much as they could possibly send into it. After hearing evidence for 11 days, Mr. Hedley, the well-known mining engineer of Derby, the arbitrator, gave his award entirely for the defendants, with costs.

On Monday week William Jones, a chartermaster at Messrs. David Jones and Sons' colliery at Cappoondale, near Bilston, was drawn over the pulley, and he died the next day from injuries received by the fall. At the inquest, on Friday, Mr. Baker, the Inspector of Mines, gave an elaborate statement of the character of the winding apparatus, from which it appeared that the engineman, James Higgs, was furnished with every appliance, that the engine was in perfect order, and that nothing but his neglect could account for the accident. Other evidence fully sustained Mr. Baker's view, and Higgs was committed for trial on the charge of "Man-laughter," but released on bail. It was said he was generally a very steady man.

A somewhat singular accident, in which the deceased man, Patrick Keano, paid with his life for his disregard of warning, occurred at the colliery of Earl Granville, near Hanley, on Thursday last. The unfortunate man was working with seven others in the jig, each being about a yard and a half apart, when a man working next to him said "The coals are stirring," to which he replied that they were "As hard as an anvil." He again refused to take notice of a warning, saying "They are not coming at all," when about 2 tons fell from the face, covering him, so that 20 minutes elapsed before he could be got from beneath them, and he died the same day. On Tuesday, James Hancock died from injuries received at Mr. Beswick's colliery, at Chell, near Tunstall, from a fall of roof, on the 3d inst. In both cases verdicts of "Accidental Death" were returned by the coroner's juries. Several persons have lost their lives within the week near Dudley and Tipton from falls of coal and roof.

EXCURSION OF SOUTH STAFFORDSHIRE MINE AGENTS.

The members of this association made an excursion on Monday, to the celebrated High Park and Moor Green Pits of Messrs. Barber, Walker, and Co., at Eastwood, in the Erewash Valley, near Nottingham, upwards of 60 members being present. The party started from the Dudley station at 7:35 A.M., in private saloon carriages, and arrived at Derby at ten, then by break and pulse had a delightful drive of 12 miles, arriving at the High Park pits at one o'clock. The High Park pits are those selected by the British Association meeting at Nottingham, in August, 1867, for their visit. Amongst the visitors we noticed the following:—Messrs. J. Barber, R. Harrison, G. H. Bond, B. Bond, W. Western, Houghton, T. Chadbourn, Wm. North, H. Johnson, (hon. sec.), S. Cole, W. Rose, E. Jones, E. Baker, E. Terry, J. M. Morgan, J. Bowen, J. Williamson, J. Lindon, A. Lindop, E. Greenway, J. Cope (Pensnett), T. Llewellyn, G. Callear, W. Britton, D. Peacock, W. Blakemoor, J. Stanford, J. Grainger, H. Hughes, W. W. Kenrick, J. Mantle, G. Gilbert, J. Petford, G. Constable, S. Cole, jun., T. Price, J. Hammond, J. Rogers, S. Spruce, T. Shaw, T. Mills, W. Spruce, W. Smith, C. Williams, T. Lloyd, T. Rose, J. Cole, A. Fellowes, H. Johnson, jun., J. Wythes, S. Checkley, G. Fellowes, J. U. Fellowes, B. Casewell, J. Breeze, H. Cook, W. Fellowes, J. Simpkins, —Tomlinson, and others.

Arrived at the High Park Pits the whole party, under the guidance of Mr. W. Weston, and Mr. Houghton, descended in batches of eight, and made an inspection of the extensive workings in the top hard coal. These pits are driven out on the level course for nearly a mile north and south, and are still extending in each direction, and it is contemplated that 1200 acres will be worked by these two pits. These pits are 135 yards deep, worked by a 36-inch direct-acting high-pressure winding-engine, which raises 1000 tons per day with two bands. The top hard coal is about 5 feet thick, and is admirably suited for household and steam purposes. The coal is being worked to the rise by gobs roads, the rise of the seam being about 2 in. in a yard. The arrangements both above and below ground are most complete. The main roads on the level course are 16 feet wide, and 12 feet high, with double line of tramroads from the shafts to the end of the workings. The sanitary provisions for the stabling of 50 horses is nearly equal to a royal mess: 5000 cubic feet of fresh air is sealed off for the ventilation of

the stables, and not a particle of filth is allowed to remain, but is sent to bank as soon as generated. Fresh water is carried from the surface into every stall, and a drinking-fountain, supplied with beautiful spring water, and a dining room for the men, capable of accommodating 200, are established near the pit bottom. Upwards of 60,000 cubic feet of air per minute is passed through the mine, and this produced by the aid of a powerful furnace, consuming 120 tons of coal per week.

After making an inspection of the High Park pits, the party visited the Moor Green Plant, belonging to the same firm. Here there are a pair of 13-foot pits, sunk to the deep hard and deep soft coals, 300 yards deep; and two pairs of 30-inch cylinder vertical direct-acting high-pressure winding-engines in one house, and 12 boilers in course of construction. The combined power of these engines is 300-horse, and are of the most modern and elaborate construction.

When this immense plant is completed it will be capable of raising 9000 tons per week out of two pits. In these pits the inverted tubbing has been introduced by Mr. Harrison, and answers admirably. All the arrangements in these pits are of the very highest order, and will, when completed, be the finest plant in the Midland Counties. The archways at the pit bottom are 20 ft. high and 20 ft. wide, sufficient to allow of loading a two-decked cage without "hitching up," and the same arrangement will be made at the pit top, in order to save time. This colliery comprises 10,000 acres of fine coal.

After inspecting the Moor Green pits, the party adjourned to the Sun Hotel, at Eastwood, where a capital dinner awaited them; and having staved at 7:35 A.M. and it being then 4 P.M., we need hardly say justice was done. Mr. G. Bond, agent to Lady Palmerston, presiding.

The party returned to Dudley at 10 P.M., no doubt much pleased and instructed in the difference between a Nottinghamshire and Staffordshire mine. It is worthy of especial observation that the proprietors, without the least reserve, not only placed their pits at the service of the members, but they laid their work in plans of this immense colliery before them, which revealed this singular circumstance, that they had driven a level for upwards of five miles in the top hard coal without a single fault in it. In South Staffordshire, it was said, 500 faults might have been expected to have been met with in the same distance.

Mr. King exhibited his patent safety-cage, to prevent loss of life from overwinding and rope breaking, which was examined with interest, and highly approved. The next excursion of this growing society is fixed for Lancashire.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

JULY 16.—During the past week there has been no alteration in the state of the Iron and Coal Trades of the district requiring special reference. The demand for rails, sheets, and other qualities of merchant iron is far from active, whilst there is but a moderate business doing in pipes and ordinary castings. Considering the depressed state of the iron trade, it is satisfactory to find that most of the furnaces on the main line of the Midland, as well as those at Alfreton, in the Erewash Valley, are in blast, although stock for some time past must be considerable. The demand for coal just now is far from good, and this is scarcely to be wondered at with the weather at considerably more than 100° in the sun and nearly 90° in the shade. The tonnage being forwarded to London is only of a limited character, and considerably less than for the same period of last year, there being a difference for June month of 1867 of nearly 3000 tons from Clay Cross alone; indeed, for some reason coalmasters from nearly all parts of the kingdom have opened out offices for the sale of their own produce at King's Cross and other stations. The trade has thus got much divided to what it was; and it is questionable whether the dozen or so of the old firms who, up to a year or two ago, supplied the London market with nearly all the coal that was consumed, will ever have a chance of being placed in the same position again. Considering the season, a moderate business continues to be done to Birmingham and the Midland Counties, and also to Worcester, Cheltenham, and as far as Gloucester, from the collieries in the neighbourhood of Church Gresley and Swadlincote. In Coke there is a fair demand for Sheffield and the district, as well as for other iron-producing localities. Just now, throughout Derbyshire, electioneering is the order of the day, and as much activity is displayed as if the polling were to take place. One thing, however, is certain, that so far as Derbyshire is concerned, the mineral interests will be well represented in the new Parliament.

There is but little alteration in the Sheffield Trades, although the tendency, on the whole, is of a rather favourable character. The heavy steel branches are busier than they have been. There are a few orders in hand for some descriptions of machinery, whilst many of the principal houses in the file trade are doing more. There is more activity at some of the works in the neighbourhood of Rotherham, so that some of the mills are kept fairly going. At Milton and Elsecar there appears to be no falling off in the activity which has characterised the districts named for some time past, although it is said there has been a dispute as to the quality of the iron, which the men complain of as being very hard. So far as that may be, there can be little doubt but the heat of the weather during the last week or so must have had an overpowering effect on the puddlers whilst at work. It is, therefore, not to be wondered at that they consider the iron given out to be worked as "very hard" indeed. There is a good business doing at the steelworks, there being some very fair orders in hand, not only for plain Bessemer, but for rails, tyres, cranks, axles, &c., of the same material.

There is no improvement in the demand for Steam and House Coal from the South Yorkshire collieries, and the trade was scarcely ever in a worse state than at present. The falling off in the business hitherto done with London is of a rather serious character just now, and it is evident that some change will have to take place with a view to its recovery. Not only, however, are the colliery owners seriously affected, but the Great Northern Railway Company are also suffering. This will be apparent when it is stated that during two very quiet months of the present year, when the trade was by no means so large as at the same period of 1867, there has been a very large falling off in the revenue of the company. Indeed, the difference between the quantity carried by the Great Northern alone last month would be from 10,000 to 12,000, less than in May. With the fact of the serious loss which will be entailed on several lines of railway by the Midland Company carrying its own minerals to London, it is patent that the Great Northern will have to make some alteration with regard to its mineral rates if the directors purpose doing anything like the business they have done hitherto. To Hull and Grimsby there is a fair business in steam coal, but scarcely up to the expectations of coalowners. The trade to Lancashire continues very quiet indeed, so that the collieries on the Manchester, Sheffield, and Lincolnshire Railway are far from being fully employed, in some instances three days a week being considered good. There is no alteration in the tonnage being forwarded to Goole for Lincolnshire and the Eastern Counties, or in the general trade by water. Coke continues in fair request, not only for the local works, but for those in Lincolnshire and Northamptonshire, from which latter country a moderate quantity of ironstone finds its way into Derbyshire, as well as into South Yorkshire.

The inquest on the body of Walter Marsden, 12, who was killed by a fall of coal in Sunlife's Victoria Colliery, Barnsley, has resulted in a verdict of "Manslaughter" against James Gibson. It appears that on Friday morning last Gibson was working in his usual place, when a fall being imminent one of the deputies who noticed it ordered him to prop the coal up in the usual manner. This he not only neglected to do, although the danger was evident, but actually sent the boy under the coal for the purpose of getting out some dirt. Whilst he was so engaged a heavy fall took place, the coal falling on to the unfortunate lad. He was at once got out, when it was found that he had received a severe compound fracture of one of his legs. Everything that medical aid could effect was done, but death took place during the night of the day the accident occurred. A few hours after the deceased had been taken home Gibson went to the house, and said to the suffering lad, "Now, Walter, did I send you into the place?" To which the lad replied with some animation, "Yes, you did, and I'll say so till I die."

REPORT FROM NORTHUMBERLAND AND DURHAM.

JULY 16.—The Coal and Coke Trades continue very quiet indeed. Of course, the extraordinary season we have must tend to promote this most depressing state of things. The weather is almost tropical, and it is no doubt equally hot in most parts of Great Britain and North Europe. Active preparations are going on for a further downward movement at the Wallsend drainage works, and it is gratifying to notice that the power now employed is quite adequate to keeping the water at the present depth; indeed, the engines are going at a very slow rate, and are capable of lifting much more water than they are now doing. But, of course, more power is required for the purpose of making a great advance downwards, and this will be provided very shortly.

INSTITUTE OF MINING ENGINEERS.

The members of this valuable institution had an outing in the neighbourhood of Seaham Harbour, on July 10, and mustered in great force. The visitors were conveyed by special train from the Hendon Station, on the Londonderry Railway, and, being received at the old Seaham terminus by several local guides, on one proceeded to view the pits at Seaham Colliery, as also to watch the working of Jukes' and Williams' self-feeding boiler-engines. The No. 1 shaft is worked at a depth of 300 fathoms, the shaft passing through the five-quarter, the main coal, the sandstone, the low main, and the Hutton, Harvey, and Busty seams, comprising a thickness of 25 feet 10 inches, and allows a great quantity of the mineral to be sent to bank. The process of winding up the coal is accomplished by a single vertical condensing engine, the diameter of cylinder being 8 inches, and the length of stroke 7 feet 10 inches, and 22 strokes are required to bring the cage to bank. The time occupied was 14 minutes, the weight of rope and lead being 10 tons each journey, and the actual horse-power indicated was set at 250. A new engine, by Murray, of Chester-le-Street, erected for the purpose of working other machinery down the shaft by means of compressed air, was subjected to a close scrutiny, as was also the detaching hook used to disconnect the cage from the rope in case of overwinding. They then viewed the locomotive shops and storehouses; and after some profitable observation, they eventually drew up at the Londonderry offices, for the luncheon prepared through the kindness of Earl Vane.

On the withdrawal of the cloth Mr. T. E. FORSTER, President of the Mining Institute, proposed "The health of Earl Vane," whose family had, ever since the foundation stone of the dock was laid, in November, 1828, been incessant in their exertions for the welfare and advancement of the district.—Mr. JOHN DAIGLISH suitably replied, and stated that notwithstanding Earl Vane's absence, they might rest assured he took a warm interest in all their proceedings. (Applause.) No sooner was the intended visit mentioned to his lordship than he expressed great sorrow at his inability to attend as their entertainer; but made amends for this deficiency by ordering all his works to be thrown open, and refreshments to be provided for their use. (Applause.) He proposed, in conclusion, "The health of their esteemed President, Mr. Forster, and hoped they would respond right loyalty. (Applause.)

The PRESIDENT having briefly replied, gave "The health of the Vice-president

of the Northern Institute of Mining Engineers," coupling with the toast "The health of Mr. George Elliott, of Houghton-le-Spring, one of the oldest members of the society." They must understand, however, that they were assembled as members of the Mining Institute, and had nothing to do with politics.

Mr. GEORGE ELLIOTT, who was received with loud applause, tendered his thanks for the kind manner in which they had accepted his name, and thought it rather remarkable that they should again meet at a place and in a parish so near the spot on which the institution originally took root. The first meeting, which was the real germ of their great society, was held at Seaton Colliery. There were present on that occasion Mr. Forster, Mr. Morton, son, Mr. Matthias Dunn, Mr. Maynard, the late coroner; Mr. Sinclair, the late Mr. Crawford, and himself; and it was then, on the completion of the unpleasant accident, that they applied their minds to the development of some well-adjusted scheme of amelioration. The society formed under such circumstances had developed into a great institution, and was now in its usefulness and its objects—the primary protection and safety of human life, and the better working of those great industries of coal mining and iron working—carrying on a work equally as great as that of any other institution in the country. Look at it in whatever way they pleased, the result was the same. The members of the institution were scattered over the land. They were of diversified education, they were acquainted with every subject affecting the interests of the mining and manufacturing enterprise of the country, while the papers, lectures, and discussions which comprised the nature of their deliberations would bear favourable comparison also. Indeed, for usefulness, practical intelligence, and scientific demonstration he believed he did not overstate the truth when he asserted that the volume issued by the members were equally as clever as the majority of those which emanated from the great civil engineering institution of the country itself. He thanked them heartily for their kind reception, assured them it was a source of great gratification to meet them in that way, and regretted that his other engagements prevented him mixing so much amongst them as he could wish. The society was calculated to prevent the loss of life, to promote the happiness of workmen, and altogether must operate most advantageously for the owners of the collieries and for the mining population of the country. (The conclusion of Mr. Elliott's remarks was received with heartiest manifestations of approval.)—After an intimation from the Chairman, to the effect that he had first proposed the establishment of the institution, and that Mr. Elliott had done him the honour to second his motion, the assemblage again found their way to the open air for the completion of their programme.

After luncheon they visited the docks, and examined the drops, &c. The appearance of the little basins, almost entirely devoid of shipping as they were, was certainly not prepossessing; but still, the construction of the drops, the different modes of discharging wagons, and the somewhat novel process of working the dock by booms while the gates were under repair, seemed to attract considerable attention. It was around a splendid specimen of Gwynne's centrifugal pump, however, that the greatest curiosity was displayed. The apparatus, which is fixed at the easternmost side of the dock, is for the purpose of pouring a greater quantity of water into the basin that is left by the receding tide, and this object is easily accomplished by pumping at the rate of 2000 gallons per minute. While in the midst of these masterpieces of engineering skill, attention was called to an interesting statistical account of the number of workmen connected with the dock, the various pits, and the railways, which showed very clearly the vast stake that Earl Vane possessed in the country. The heads of departments were returned as 53, whilst there were engaged underground 18 overmen, 109 deputies, 1176 heavers, 370 shifters, 59 wagonway men, and 753 boys, or a total of 2485 workmen. Employed above ground were 98 joiners, 3 painters, 29 masons, 39 fitters, 110 blacksmiths, 184 enginemen and firemen, 59 quarrymen, 289 cokeburners' labourers, 20 horse drivers and horse keepers, 10 platelayers and wagonway men, 32 wagon riders, 66 staithmen and trimmers, 36 guards and signalmen, 5 telegraph boys, 22 harbour men and dock pilots, 9 sailors, and 50 pilots, making, with those noticed as workers amongst the remnants of the carboniferous era, a grand total of 3690 souls. There were also said to be five collieries worked by his lordship, 16 pits with total aggregate depth of 8000 feet, 473 horses and ponies, while the number of houses occupied by the workmen was 1920. The coal consumed by engines yearly was 97,200 tons, and by workmen 37,600 tons, or a total of 134,800 tons. There were 56 engines engaged, 120 boilers, 15 locomotives, and

works are at Cwmbran, Monmouthshire, has been held at the Queen's Hotel, Mr. Samuel Thornton in the chair. The principal business was to determine whether, in order to settle with Messrs. Watkins and Keen, the vendors of the property, whose guarantee expired on June 30, it was necessary that stock should be taken. The directors explained that they were advised that it was not legally necessary to take stock, and that a great expense would be incurred, besides considerable loss of profits, if the works were stopped for this purpose. They recommended that stock should not be taken until Dec. 31, which was unanimously agreed to. The Chairman then announced that a carefully-prepared statement of the transactions of the company for the six months ending June 30 had been submitted to the directors, showing results of a very favourable character, and warranting an interim dividend of 12s. 6d. per share, which would be paid on the 4th of the ensuing month.

Mr. P. W. Flower, of the Melin Tin-Plate Works, presented Mr. David Williams, his resident engineer, with a silver tea and coffee service, a gold chain, and a suitably inscribed gold medal, subscribed by the workpeople. This presentation must not be confused with that noticed last week, where Mr. Williams presented, and Mr. Flower was the recipient.

The arrivals at Swansea include—the Christobel, from Cherbourg, with 162 tons iron ore for Crawshay and Co.; the Fernhound, from Antwerp, with 150 tons pig-iron for Forester and Co.; the Dernhounds, from Carrizal, with 750 tons copper regulus and 2 tons copper ore for H. Bath and Son; the Mary Ann, from Bilbao, with 260 tons iron ore for W. H. Tucker; the Maria Clemence, from Bilbao, with 150 tons iron ore for W. H. Tucker; the Renomme, from Antwerp, with 4722 cakes zinc for the Governor and Company of Copper Miners in England; the Huasco, from Tortorillo, with 620 tons copper in bars for H. Bath and Son; the Hebe, from Carloforte, with 402 tons zinc ore for H. Bath and Son; the Miner, from Coquimbo, with 470 tons copper regulus, 159 tons copper ingots, 59 tons copper in bars, and 70 sacks lapis lazuli for H. Bath and Son; the Laura, from Carloforte, with 360 tons zinc ore for H. Bath and Son; the Favourite, from Carloforte, with 370 tons zinc ore for H. Bath and Son; the Excel, from Carloforte, with 350 tons zinc ore for H. Bath and Son; the John Rosser, from Tilt Cove, with 205 tons copper ore for H. Bath and Son; the Lorenzo Semprun, from Bilbao, with 342 tons iron ore for Cory Brothers and Co.; T. G. V., from St. Malo, with 100 tons of zinc ore for Dillwyn and Co.

REPORT FROM THE FOREST OF DEAN.

JULY 15.—The Coal Trade of this district has not improved since last report; indeed, we hear that at one of the collieries here the coal is being stacked, and no doubt it will remain so until the cold or wet season sets in. It is not so much the small demand that occasions this as the price offered by the merchants. The usual number of iron smelting furnaces are in blast, and, we believe, in full operation.

There appears to be a little improvement in the Iron Trade, and no doubt there is still reason for greater advancements in prices, as we think the masters have had some cause to complain in this respect. They have, however, exercised great kindness towards the men employed by them, and it is a gratification to be able to report that very little reduction of wages has taken place during the whole interval of dullness. We trust that prosperity will soon return, and employers and men be rewarded for their recognition of each other's rights. Mr. Russell's rolling mills are fully employed, and, taking into consideration the general appearance of things, we are of opinion that this work is likely to become well established; adjoining the works a manager's dwelling-house, with other offices, have been erected.

Now the Bowson or Great Western Deep Colliery Company has again started, with a capital of 40,000*l.*, it is to be hoped they will spend it more wisely than they did heretofore, and that they will now complete their undertaking with success. The new Staple shaft they are sinking, to receive pumps, is down about 60 yards, but it is of a small size (only 7 feet in diameter), and the walling of this pit to hold up the pumping apparatus is only 9 inches thick; we are of opinion that a shaft of 9 feet diameter would have been better adapted as a pumping shaft, and the stoning or walling for such a shaft should at least be 15 inches thick. The water in the other two shafts is at about the same level as usual, and they are constantly hauling it with the winding engines and wrought-iron boxes.

There appears to be more spirit just now among iron ore proprietors. At Buck Shaft Iron Mine Mr. Crawshay has just completed the erection of a new engine, of much greater power than the old one, and we hear the same proprietor intends putting up a new and powerful engine at the Saint Annals Iron Mine, and when that is completed the shaft will be sunk deeper, in order to approach the level from the Buck Shaft Iron Mine.

Mr. Barrett, the owner of the Fair-play Iron Mine, is also about to erect a large pumping and other engines at that work, and as soon as possible afterwards the shafts will be continued down to the iron ore bearing measures. This work was commenced some years since by Mr. Timothy Bennett. Engines were then put up, and the pits sunk a certain depth, but the proprietor became disinclined to further adventure. It was also discovered that the engines put up were not of sufficient power; this was, no doubt, one of the great reasons why the work has remained so long undeveloped. The present owner will, no doubt, complete the works, and, we hope, with every success to himself.

It is generally understood that the Messrs. Alloway have put down the Wigpool Iron Mine. They have been searching at that place for iron ore for several years, and the sum of money expended must be large indeed. With our present notion of the formation of iron ore, Wigpool was the last place we should have made search for it. However, there are people to be found who still assert that iron ore may yet be discovered there, but we know by experience that it is not so.

The best and most valuable iron ore bearing measures are enclosed between lines, one of which runs from the pit at the Edge Hills Iron Mine duly west, and the other commencing from a point about $\frac{1}{2}$ mile south of the Findall level, and going directly west; the belt so enclosed would find a land boundary line at the termination of the deep boundary lines of part of the Penswells Iron Mine, and part of the Earl Fitzharding Iron Mine, and would extend about 120 chains into the deep, westward, into the Forest basin.

This tract of iron ore has recently been taken up and granted by the Crown to certain persons in the district, and we may add that such persons are fortunate indeed in their selection, so valuable is the tract of iron ore that a Forest company has consented to purchase a portion of it, and we have no doubt that the whole of the remaining tract will soon fall into the hands of a purchaser.

The Dean Forest Central Railway Company are slowly going on, but they will get on a little better when the branch line to the Fancy Colliery is completed. Some time since it was reported that the Severn and Wye Railway Company would have their new gauge permanent line finished up to Parkend, but they have failed in this, and it is now expected that they will not reach that point before September next.

The Town Hall and Market Place at Cinderford has been unsatisfactorily managed by the architect, Mr. E. J. Reynolds; indeed, the mistakes made in the erection are considered so serious that the directors thought it advisable he should retire. We understand they have appointed Mr. H. D. Hoskold, their consulting engineer and architect. The building is, therefore, rapidly going up under his direction. Many parts of the building he has taken down and replaced on a better design, and we understand that he contemplates taking down the whole of the roof timbers, on account of their bad construction, and even dangerous condition. It is expected the building will be completed in about three months.

NEW MINING MAP.—We find that Mr. R. SYMONS, surveyor, &c., of Truro, who has published several very useful maps of mining districts in Cornwall, is preparing for publication a new edition—from a careful revision of his Map of 1850—of the Camborne and Illogan district, with the addition of Gwennap and Redruth mines. The map will embrace all the mines situate between the eastern boundary of the parish of Gwennap and the town of Camborne, embracing the whole group of the most valuable mines in the county. Several cross sections will also be given. Considering that in the 18 years which have elapsed since the first publication many mines have come into being, and that the boundaries of many others have been altered, we regard the map now being prepared as a very timely work.

THE REFORMED PARLIAMENT.—Captain Bedford Pim has offered himself as a candidate for the representation of the new borough of Gravesend in the next Parliament. Capt. Pim has had much experience of the world, and has, at least, the recommendations of energy and integrity.

STEAM-BOILERS made by WILLIAM WILSON, LILYBANK BOILER WORKS, GLASGOW, on the most improved principles, for home and export. All boilers made of the best material and workmanship, proved and warranted tight under a high pressure, and delivered at any railway station or shipping port in the kingdom at moderate rates. Lithograph of boilers forwarded post-free on application.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Devon.

IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL EXMOUTH MINING COMPANY.—Notice is hereby given, that a PETITION for the WINDING-UP of the ABOVE-NAMED COMPANY by the Court was, on the 9th day of July instant, presented to the Vice-Warden of the Stannaries by James Hampton, of Bodmin, a contributor and also a creditor of the said company, and that the said petition is directed to be heard before the Vice-Warden, at the Prince's Hall, Truro, on Wednesday, the 12th day of August next, at Twelve o'clock at noon.

Any contributor or creditor of the company may appear at the hearing, in opposition to the petition, his solicitor, or his agents, of his intention to do so, such notice to be forwarded to P. P. Smith, Esq., secretary of the Vice-Warden, Truro. Every such contributor or creditor is entitled to a copy of the petition and affidavit verifying the same from the petitioner, his solicitor, or his agents, within 24 hours after requiring the same, on payment of the regulated charge per folio.

Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before the 8th day of August next, and notice thereof must at the same time be given to the petitioner, his solicitor, or his agents.

HODGE, HOCKIN, AND MARRACK, Truro, Cornwall.
(Agents for H. S. Stokes, Bodmin, Petitioner's Solicitor.)

Dated Truro, July 14th, 1868.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the SITHNEY WHEAL METAL MINING COMPANY.—By an Order made by His Honor the Vice-Warden of the Stannaries in the above matter, dated the 9th day of July instant, on the petition of John Burgess, of Barncoose, within the said Stannaries, the purser, and also a shareholder of the said company, IT WAS ORDERED that the said SITHNEY WHEAL METAL MINING COMPANY should be WOUND UP by this Court under the provisions of the Companies Act, 1862.

HODGE, HOCKIN, AND MARRACK, Truro, Cornwall.
(Agents for John Roscorla, Penzance, Solicitor for the Petitioner.)

Dated Truro, July 15th, 1868.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the GREAT WHEAL BUSY MINING COMPANY.—TO BE SOLD, BY PUBLIC AUCTION, at and upon the GREAT WHEAL BUSY MINE, in the parish of Kewyn, in the county of Cornwall, under the direction of the Registrar of this Court, on Monday, the 3d day of August next, at Twelve o'clock at noon, subject to such conditions as shall then and there be produced, in One or more Lots, as may be then and at that time agreed on, the undermentioned

MACHINERY, PITWORK, AND MATERIALS, &c.:

A part of 30*ft.* new stamping ENGINE, not erected.

ONE stamping ENGINE, 33*in.*, 9*ft.* stroke, with two fly-wheels and drivers, and THREE BOILERS, complete.

ONE pumping ENGINE, 36*in.* with ONE BOILER, complete.

FOUR (1*t.*) ton BOILERS at great engine, three in boiler-house and one outside.

ONE whin ENGINE, 20*in.*, 7*ft.* stroke, with ONE BOILER and boiler-work, fly-wheel, and cage, complete.

TWO new BOILERS, 22*ft.*

ONE 22*in.* pumping ENGINE, with ONE BOILER, 5*ft.* iron axles.

2 sets of frames, with stamp heads, and 3 ditto without.

20*ft.* 9*in.* 14*in.* pumps.

18*ft.* 9*in.* 12*ft.* 13*in.* ditto.

19*in.* 11*1/2* *ft.* pole case.

19*in.* 6*ft.* matching piece.

23*in.* door pieces.

13*in.* 6*ft.* slack seat piece.

12*in.* H. and top door piece.

12*in.* 10*ft.* windbore.

12*in.* 4*ft.* ditto.

13*in.* 6*ft.* ditto.

3*ft.* 14*in.* matching piece.

6*ft.* 11*in.* do.

6*in.* H. piece.

2*1/4* in. 11*1/2* *ft.* water barrels, stamps, heads and lifters, tongues & cases.

Grate plates, about 10*ctw.*

Steam reservoir.

3 sockets, bishops heads, &c.

Crab winch, bearing block, and part of a winch.

Together with the account-house and office furniture, and a variety of other materials and effects in general use in mines.

To view the above, or any part thereof, application should be made to Mr. SAMUEL OSBORNE, the officer in charge thereof.

J. ROBERTS, Truro.

(Agent for Messrs. Stephens, France, and Jago, solicitors, Plymouth.)

Dated Registrar's Office, Truro, July 15th, 1868.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN RE WHEAL MARGARET MINE.—TO BE SOLD, pursuant to an Order made in a Cause of Treweks v. Tripe and Others, dated the 15th day of June last, at the Registrar's Office, at Truro, on Wednesday, the 29th day of July instant, at One o'clock in the afternoon, the—

2 (89*t.*) PARTS or SHARES of the defendant, Henry Tripe; the

2 (89*t.*) PARTS or SHARES of the defendant, Julia White; and the

1 (89*t.*) PART or SHARE of the defendant, James Humby;

Or and in the said MINE.

F. HEARLE COCK, Solicitor, Truro.

(Agent for R. H. Bamfield, Plaintiff's Solicitor, St. Ives.)

Dated Registrar's Office, Truro, 16th July, 1868.

LEICESTERSHIRE.

FREEHOLD FARMS, situate in the parishes of Newbold Verdon, Osbaston, and Barlestow, near to Market Bosworth, and within easy distance of the Desford and Bagworth Stations on the Midland Railway, and thus in close communication with the populous towns of Leicester and Birmingham, and containing together 47*3/4* A. 2*1/2* R. 31 P. of excellent ARABLE, MEADOW, and COPPIE LANDS, in the occupation of yearly tenants, the whole of which land is within a short distance of Bagworth and Nailstone Wige Collieries, where VALUABLE COAL is now being worked.

MESSRS. DANIEL SMITH, SON, AND OAKLEY

have received instructions to PREPARE FOR SALE, BY AUCTION, at the Auction Mart, Tokenhouse-yard, near to the Bank of England, on Thursday, the 30th day of July, at Two o'clock precisely, in Two Lots, this—

VALUABLE ESTATE.

It divides itself into TWO FARMS, the larger one, containing 297*A.* 3*R.* 22*P.*, is in the village of NEWBOLD VERDON, and at present in the occupation of two yearly tenants; but the FARMHOUSE and PREMISES are well situated for the whole of the land, which together form a very good occupation.

The other farm, of 175*A.* 3*R.* 9*P.*, does not adjoin the first farm, but is very near thereto; it has good FARMHOUSE and PREMISES, and is also occupied by a yearly tenant.

The whole estate is in very good cultivation, and independently of any coal value forms a sound and desirable agricultural investment in a good part of a favourite county. The minerals have been examined and reported on by eminent valuers of coal, and are considered to represent an important present value in addition to the agricultural value, which mineral value is rendered of much more importance in consequence of the rapid exhaustion of the South Staffordshire coal field.

Plans and particulars may be had of Messrs. PARKER, ROOKE, and PARKERS, solicitors, 17, Bedford-row; or of Messrs. D. SMITH, SON, and OAKLEY, land agents, and surveyors, 10, Waterloo-place, Pall Mall, S.W.

THE GARNETT AND MOSELEY GOLD MINES,
IN THE STATE OF VIRGINIA,

TO BE SOLD BY AUCTION, BY ORDER OF THE LIQUIDATORS.

M. E. EILORART is instructed to SELL the above MINES, BY AUCTION, on Tuesday, the 4th day of August, 1868, at the Auction Mart, in the City of London, at Twelve for One o'clock precisely.

The MINES are situate in the COUNTY OF BUCKINGHAM, in the STATE OF VIRGINIA, upon property consisting of about 1200 acres of land, and are supposed to contain an unlimited supply of gold ore.

Reports of the mine may be seen, and particulars and conditions of sale, when ready, may be obtained on application to Messrs. WOODROFFE and PLASKITT, 1, New-square, Lincoln, London; or to Mr. EILORART, No. 40, Chancery-lane, London. In New York, further information may be obtained on application to Messrs. DEHON, CLARK, and BRIDGES.

GRAMBLER AND ST. AUBYN MINES,
IN THE PARISH OF GWENNAP.

(Within one mile of the Redruth Station of the West Cornwall Railway.)

TO BE SOLD, BY PRIVATE CONTRACT, THE WHOLE OF THE MACHINERY and MATERIALS of the GRAMBLER AND ST. AUBYN MINES, consisting of—

ONE 60*in.* PUMPING ENGINE, with BOILER, 14*t.* tons;

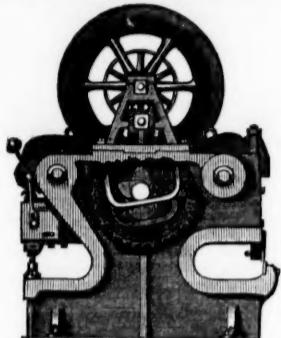
ONE 18*in.* inch WINDING ENGINE,

BICKFORD'S PATENT SAFETY FUSE

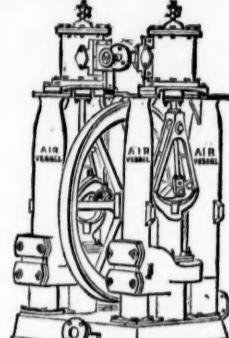
Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862, in London; at the "IMPERIAL EXPOSITION" held in Paris, in 1865; at the "INTERNATIONAL EXHIBITION" in Dublin, 1865; and at the "UNIVERSAL EXPOSITION," in Paris, 1867.



BICKFORD, SMITH, AND CO., of TUCKINGMILL, CORNWALL, MANUFACTURERS OF PATENT SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—
EVERY COIL of FUSE MANUFACTURED BY them has two SEPARATE THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as THEIR TRADE MARK.

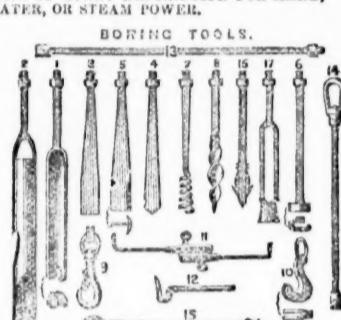
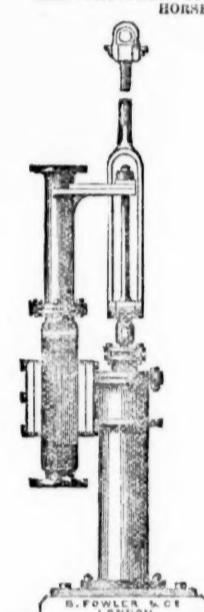


JOHN CAMERON'S
PATENT DOUBLE CAM LEVER
PUNCHING AND SHEARING
MACHINE,
 $1\frac{1}{4} \times 1\frac{1}{4}$ in. \times 24 in. \times 8 tons. £185.
WORKS,
EGERTON STREET, HULME,
MANCHESTER.

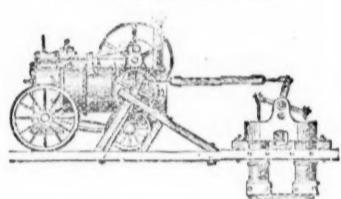


JOHN CAMERON'S
STEAM PUMPS,
From 2 to 12 in. diameter,
SINGLE AND DOUBLE-ACTING.
WORKS,
EGERTON STREET, HULME,
MANCHESTER.

S. OWENS AND CO. (LATE CLINTON AND OWENS), WHITEFRIARS STREET, FLEET STREET, LONDON, E.C., HYDRAULIC AND GENERAL ENGINEERS,
MANUFACTURERS OF PUMPS OF EVERY DESCRIPTION FOR HAND,
HORSE, WATER, OR STEAM POWER.



Boring Tools of every description, for Testing Ground and for Artesian Wells.



Portable Engines with Double Barrel, or other Pumps, on Hire or Purchase.

Improved Double-action Pumps.
Full information, Drawings, Price Lists, &c., relating to the above, and to Hydraulic Machinery of all descriptions—Gears, Pulleys, Bars, and Hoisting Tackle of superior Manufacture—may be had on application.

CREASE'S NEW AND IMPROVED PNEUMATIC TUNNELLING ENGINE.

THE PROPRIETORS of this INVENTION, in order to bring its CAPABILITIES more prominently before the PUBLIC, are OPEN to TAKE CONTRACTS for DRIVING LEVELS. Preference will be given to ADIT LEVELS and those places where ROTARY MACHINERY is in use, and can be applied to driving the AIR COMPRESSOR.

Address—E. S. CREASE, 7, Hoe-street, Plymouth.

BRITISH, COLONIAL, AND FOREIGN PATENTS, REGISTRATION OF DESIGNS, COPYRIGHTS, TECHNICAL TRANSLATIONS, DRAWINGS, &c.

M. MICHAEL HENRY, Memb. Soc. Arts, Assoc. Soc. Engineers, Author of the "Inventor's Almanac," and the "Defence of the Present Patent Law."

PATENT REGISTRATION AND COPYRIGHT AGENT AND ADVISER. Inventors advised in relation to Patents and Inventions and Industrial Matters. Printed information sent free by post. Specifications drawn and revised. Searches conducted. Abstracts, Cases, and Opinions drawn.

Translations of Catalogues, Trade Notices, and Circulars for the approaching Paris Exhibition. Mr. HENRY has had special experience in technical French, and in French Manufacturing and Commercial Matters.

Offices, 68, Fleet-street, E.C., London, corner of and entrance in Whitefriars street.

CARLISLE BISCUIT COMPANY.

CARLISLE BISCUIT COMPANY.—WHOLESALE AND EXPORT BISCUIT MANUFACTURERS, CARLISLE, &c., CITY ROAD, LONDON. For twenty years their biscuits have maintained a high reputation. For export they are specially prepared, so as to keep in any climate. To wholesale buyers a liberal discount is allowed. Price lists forwarded on application.

MEAT BISCUITS FOR DOGS.

MEAT BISCUIT FOR DOGS, made by the CARLISLE BISCUIT COMPANY, is undoubtedly the best and cheapest food for dogs that has ever been introduced. It is equally adapted for sporting dogs, yard dogs, or for pets. It requires no cooking, and, without any other food, keeps dogs in the highest condition. Many of the prize-taking dogs at the last Birmingham show were fed, from puppies, on this biscuit. Price 20s. per cwt. at Carlisle; or at their depot, 26, City-road, London, 22s. per cwt. Post-office orders payable to WILLIAM SLATER, Carlisle. Sold by corn chandlers everywhere. Book of testimonials from well-known country gentlemen, sent on application. Agents wanted.

WILLIAM SLATER Managing Director.

THE IRON TRADE REVIEW.—The Iron Trade Review is the leading organ in which the interests of the iron manufacturers of Great Britain are represented. The aim of the proprietors is to provide a journal which shall be worthy of this important branch of national industry. The following matters receive special attention:—Detailed reports of the state of trade in all the important manufacturing districts, with latest intelligence of meetings, and price lists of pig and finished iron. Occasional notices of the Continental and American trades. Condensed information relative to the proceedings of railways and other public companies which have a bearing upon the iron trade. Notices of scientific improvements applicable to the manufacture of iron. Reports on such labour questions as may arise. Notes on Parliamentary Bills bearing on the trade. In addition to the above, leading articles on important topics appear in each issue, and great care is taken that the information contained in the Review shall be thoroughly reliable. The annual subscription is one guinea, payable in advance. Advertisements are inserted on reasonable terms, which may be ascertained on application. Published for the proprietors, at the Iron Trade Review office, Middlesbrough-on-Tees (and 80, Grey-street, Newcastle-on-Tyne), by M. and W. Lambert, printers.

THE NEWCASTLE CHRONICLE AND NORTHERN COUNTIES ADVERTISER. (ESTABLISHED 1864.) Published every Saturday, price 2d., or quarterly 2s. 2d.

THE DAILY CHRONICLE AND NORTHERN COUNTIES ADVERTISER. Published every morning. Price 1d.

Offices, 42, Grey-street, Newcastle-upon-Tyne; 50, Howard-street, North Shields; 198, High-street, Sunderland.

THE MINING JOURNAL.

Mining and Rock Tunneling.

THE PATENT TUNNELING AND MINING MACHINE COMPANY
(LIMITED)

Invite the attention of MINING AND RAILWAY ENGINEERS AND CONTRACTORS to their

PATENT ROCK-BORING MACHINES,

Which cut circular headings and adits of any diameter, from $4\frac{1}{2}$ to $6\frac{1}{2}$ feet. These machines are manufactured for working by COMPRESSED AIR, by the use of which PERFECT VENTILATION is kept up in the tunnel, and serious accidents are prevented; they are also locomotive, and so simple in management that they may be driven by a boy.

The Special Advantages attached to the use of these machines are

That they surpass in speed by far every rock-boring machine hitherto invented.

That no blasting is required.

That the headings or adits are cut out clean.

That the debris is removed by the machine itself.

That the machine does not require to be withdrawn from the face of the rock, excepting when it is necessary to change the chisels.

A SIX-FOOT (compressed air) MACHINE has been on trial for some weeks at a quarry at VAUGIRARD, near Paris, and is cutting at the present time at the rate of NINE FEET per hour, with about 340 $1\frac{1}{2}$ in. strokes per minute. This EXTRAORDINARY RESULT is obtained by STEAM at a little over half the requisite power. The machine has improved greatly in its action and speed since the commencement of the trial, and but one set of chisels has been used throughout.

The invention is considered of so much importance in engineering circles that a commission has been appointed by the French Government to examine and report upon a series of experiments.

NOTICE.—The machine can be seen in operation daily (Sundays and Fridays excepted) from Two until Four o'clock, and Orders to View, and additional particulars, can be obtained upon application either to Capt. H. N. PENRICE, Hotel Meurice, rue Rivoli, Paris; or to Mr. G. E. LADBURY, Secretary, 8, Old Jewry, London.

HEATON'S PATENT.

THE LANGLEY MILL STEEL & IRONWORKS COMPANY
(LIMITED),

LANGLEY MILL, NEAR NOTTINGHAM,

Are now making Cast-Steel suitable for Tools, Taps, Dies, Chisels, &c., &c., Shear Steel, and Iron of a very superior quality, by their direct process, under the superintendence of the Patentee.

The range of quality which this process secures renders the Steel and Iron suitable for almost every purpose to which these metals can be applied. Also, CAST-STEEL CASTINGS of all kinds from PATTERNS or DRAWINGS.

ISAAC STOREY AND SON,

MAKERS OF

DOMES AND OTHER FITTINGS FOR LOCOMOTIVE ENGINES,

STILLS, PANS, AND GENERAL COPPER WORK,

IMPROVED WATER GAUGES, BLOW-OFF COCKS, SAFETY VALVES, FUSIBLE PLUGS, &c.,

As recommended by the Steam-Boiler Associations.

GENERAL STEAM WORK, WHEEL VALVES, SLUICE VALVES, COCKS, &c.

IMPROVED GAS VALVES,

BABBITT'S AND FENTON'S PATENT ANTI-FRICTION METALS,

Wholesale Agents for Bourdon's, Schaeffer's, and other good Makers of

STEAM AND VACUUM GAUGES;

Richards's, McNaught's, and Hopkinson's

STEAM ENGINE INDICATORS.

Wrought Iron Tubes and Fittings for Steam and Gas Work.

KNOTT MILL BRASS AND COPPER WORKS,

LITTLE PETER STREET

MANCHESTER.

Illustrated Lists on application.

DAVIS AND PRIMROSE,

LEITH, N.B.,

STEAM HAMMERS,

$1\frac{1}{2}$ cwt., 3 cwt., and 5 cwt. sizes, always in stock or progress.

ENGINES AND BOILERS COMBINED,

From 2 to 20-horse power. Small sizes usually ready for delivery.

PUMPING AND WINDING ENGINES,

CRANES, HOISTING MACHINERY, &c.



PARIS EXHIBITION, Silver Medal for STEAM CRANES.

1867—AWARDS, Bronze Medal for DONKEY FEED PUMPS.

APPLEBY BROTHERS,

EMERSON STREET, SOUTHWARK,

LONDON, S.E.,

Engineers and Patentees of STEAM CRANES, DONKEY PUMPS, &c.

PATENT DONKEY PUMPS.

Nos. 1 2 3 4 5 6 7 8 9
Diam. of ram .. $1\frac{1}{2}$ in. 2 in. $2\frac{1}{4}$ in. $2\frac{1}{2}$ in. $2\frac{3}{4}$ in. $3\frac{1}{4}$ in. $3\frac{1}{2}$ in. $4\frac{1}{4}$ in.

*Gall. per hour .. 280 400 680 1200 1500 2100 2500 3500

Approx. H.P. 15 25 40 50 80 95 130 150 230

Single-acting price £10 5s. £12 10s. £15 0s. £18 0s. £20 0s. £24 0s. £28 0s. £32 0s. £45 0s.

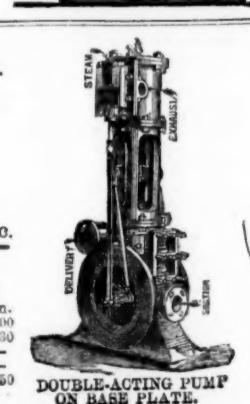
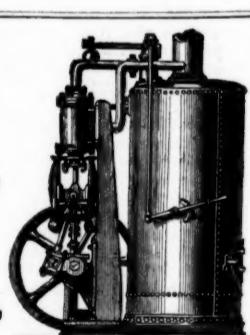
Double-acting do. 11 10s. 14 0s. 17 0s. 20 0s. 24 0s. 28 0s. 32 0s. 38 0s. 55 0s.

Double-acting pump on base plate 27 0s. 32 0s. 38 0s. 43 0s. 55 0s.

* Calculated at 900 strokes per minute.



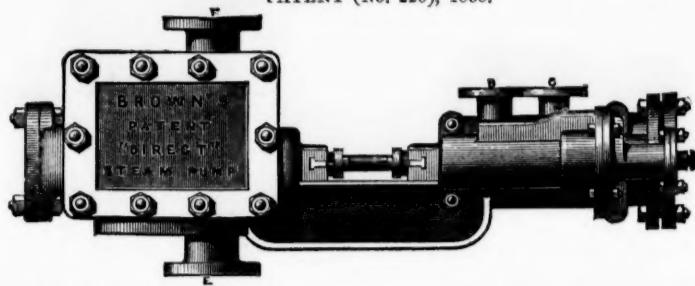
SINGLE-ACTING
PUMP.



THE NEW "DIRECT" STEAM PUMP.

PATENT (No. 220), 1868.

No fly wheel,
Connecting Rod, Crank, or
Eccentric.
No Springs Whatever.



No Valves or Spindles struck
by either Piston or
Piston Rod. No Tappets of
any Description.

This Pump is unquestionably the simplest in construction that can possibly be made, seeing that it consists of but THREE WORKING PARTS—viz., main piston and rod with pump bucket, slide valve, and small subsidiary piston. The slide valve is moved by steam admitted at either end by means of small ports or passages in the cylinder, which are uncovered, at the extremes of the stroke, by the main piston. The practical result is that the main piston acts as a slide valve on the small or subsidiary piston, which, in its turn, causes the slide valve proper to distribute the steam upon the main piston. In this method there is no striking of any portion of the piston or rod, nor any mechanical contact whatever between the latter and the slide valve with its piston. The pump is, therefore, quite silent and at all times certain in its action.

PRICE LIST.

WATER PUMPS.			AIR PUMPS.		
Diameter of double-acting barrel.	Gallons thrown per hour.	Price.	Diameter of double-acting barrel.	Cubic feet per hour compressed to a density of 30 lbs. per square inch.	Price.
No. 14 3 inches	3,000	£25	No. 1 5 inches	500	£25
15 " 4 "	6,000	35	2 6½ "	1000	35
16 " 5 "	9,000	50	3 7½ "	1500	50
17 " 6 "	12,000	75	4 9 "	2000	75

The average speed of these Pumps, to throw the above quantities of water, is 80 strokes per minute.

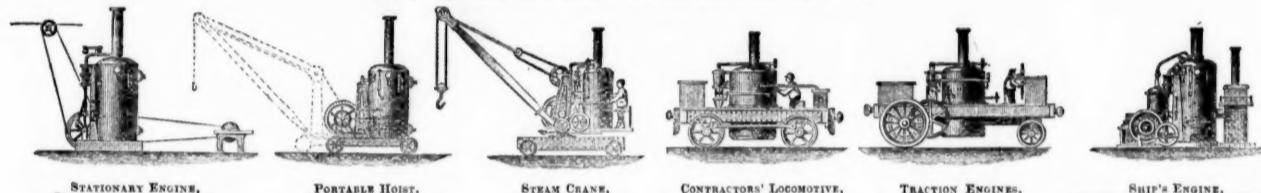
LARGER SIZES AND OTHER PARTICULARS ON APPLICATION.

BROWN BROTHERS & CO., 80, Cannon-street, London, E.C.

Sole Licensees and Manufacturers of the Patent Combined STEAM and HYDRAULIC CRANE, and of the NEW INJECTOR.

CHAPLIN'S PATENT PORTABLE STEAM ENGINES AND BOILERS.

PRIZE MEDAL, INTERNATIONAL EXHIBITION, 1862.



ENGINES of each class KEPT IN STOCK FOR SALE or HIRE, and all GUARANTEED as to EFFICIENCY, MATERIALS, and WORKMANSHIP.
WIMSHURST AND CO., ENGINEERS, LONDON STREET, COMMERCIAL ROAD, LONDON, E. (at Stepney Station of Blackwall Railway.)

PATENT FLEXIBLE TUBING,
AND BRATTICE CLOTH FOR MINES

MANUFACTURED BY
ELLIS LEVER,

WEST GORTON WORKS, MANCHESTER.

IMMENSE SAVING OF LABOUR.
TO MINERS, IRONMASTERS, MANUFACTURING CHEMISTS, RAILWAY COMPANIES, EMERY AND FLINT
GRINDERS, MCADAM ROAD MAKERS, &c., &c.

BLAKE'S PATENT STONE BREAKER,
OR ORE CRUSHING MACHINE,

FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.

It is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England. Read extracts of testimonials:—

The Parys Mines Company, Parys Mines, near Bangor, June 6.—We have had one of your stone breakers in use during the last twelve months, and Captain Moreton reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.

For the Parys Mining Company, JAMES WILLIAMS.

H. R. Marsden, Esq.

Ecton Emery Works, Manchester.—We have used Blake's patent stone breaker made by you, for the last 12 months, crushing emery, &c., and it has given every satisfaction. Some time after starting the machine a piece of the moveable jaw's about 20 lbs. weight, chilled cast-iron, broke off, and was crushed in the jaws of the machine to size fixed for crushing the emery.

H. R. Marsden, Esq.

THOS. GOLDSWORTHY & SONS.

Alkali Works, near Wednesbury.—I at first thought the outlay too much for an article, but now think it money well spent.

WILLIAM HUNT.

Welsh Gold Mining Company, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quartz.

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Our 15 by 7 in. machine has broken 4 tons of hard whinstone in 20 minutes, for fine road metal, free from dust.

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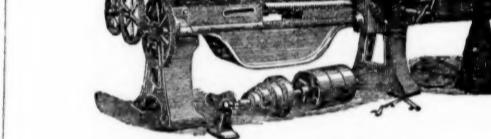
CAUTION!
BLAKE'S PATENT STONE BREAKER,
In Chancery.

BLAKE v. ARCHER, NOVEMBER 12, 1867.

His Honour the Vice-Chancellor WOOD having found a VERDICT in FAVOUR of the PLAINTIFFS in the above Cause, establishing the VALIDITY of BLAKE'S PATENT, and made a DECREE for an INJUNCTION to RESTRAIN the DEFENDANTS, Messrs. THOMAS ARCHER and SON, of Dunston Engine-Works, near Gateshead-on-Tyne, from INFRINGING such PATENT, and ordering them to pay to the Plaintiffs the costs of the Suit.

ALL PERSONS are hereby CAUTIONED against MANUFACTURING, SELLING, or USING any STONE BREAKERS similar to BLAKE's, which have not been manufactured by the Plaintiffs. Application will forthwith be made to the Court of Chancery for INJUNCTIONS AGAINST ALL PERSONS who may be found INFRINGING BLAKE'S PATENT after this notice.

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200 Boddalack, t, c, St. Just	91 5 0 ..	—	—	—	488 18 0 ..	5 0 0 ..	May 1868
4000 Brookwood, c, Buckfastleigh	11 11 0 ..	—	—	—	40 10 0 ..	0 2 6 ..	April 1868
1000 Bronfley, t, Cardigan*	12 0 0 ..	—	—	—	9 2 0 ..	0 6 0 ..	May 1868
5000 Brych Consols, s-l, Cardigan*	4 0 0 ..	—	—	—	5 0 0 ..	0 5 0 ..	June 1868
6000 Cashwell, t, Cumberland*	2 10 0 ..	—	—	—	0 1 6 ..	0 1 6 ..	Aug. 1868
916 Cargoll, s-l, Newlyn	15 5 7 ..	—	—	—	14 5 0 ..	0 10 0 ..	Jan. 1868
509 Creghawase and Penkevill, t	—	—	—	—	2 5 0 ..	1 5 0 ..	April 1868
867 Cwm Erfin, t, Cardiganshire*	7 10 0 ..	—	—	—	28 8 0 ..	0 15 0 ..	July 1868
123 Cwmystwyth, t, Cardiganshire*	60 0 0 ..	—	—	—	381 10 0 ..	2 0 0 ..	Dec. 1867
280 Derwent Mines, s-l, Durham	300 0 ..	—	—	—	177 0 0 ..	2 10 0 ..	July 1868
1024 Devon Cons., c, Tavistock*	1 0 0 ..	450	425 450	—	1102 0 0 ..	7 0 0 ..	May 1868
656 Ding Dong, t, Gyllyng*	49 14 6 ..	—	—	—	40 10 0 ..	0 10 0 ..	Sept. 1867
634 Dolcoath, c, t, Camborne	2 14 6 ..	—	—	—	848 10 0 ..	4 0 0 ..	June 1868
124 East Caradon, c, St. Cleer*	22 17 6 ..	—	—	—	14 11 6 ..	2 0 2 ..	July 1867
300 East Darren, t, Camborne*	32 0 0 ..	—	—	—	188 10 0 ..	2 0 0 ..	May 1868
128 East Pool, t, c, Pool, Illogan	24 5 0 ..	—	—	—	432 10 0 ..	5 0 0 ..	May 1868
1906 East Wheal Lowell, t, Wendron	3 9 0 ..	7 1/2	7 7 1/2	—	4 1 6 ..	0 10 0 ..	May 1868
2800 Foxdale, t, Isle of Man*	25 0 0 ..	—	—	—	71 10 0 ..	0 10 0 ..	July 1868
5000 Franklin Mills, t, Christow	3 18 6 ..	—	—	—	3 5 6 ..	0 5 0 ..	Feb. 1868
3950 Gawton, t, Tavistock*	3 10 6 ..	—	—	—	0 3 0 ..	0 3 0 ..	Jan. 1868
15000 Great Laxey, t, Isle of Man*	4 0 0 ..	17	16 1/2 17	—	8 15 0 ..	0 10 0 ..	June 1868
5000 Great Wheal Vor, t, St. Cleer*	49 0 0 ..	16	15 16	—	13 3 6 ..	0 7 6 ..	June 1868
6000 Great Wheal Vor, t, c, Helston*	8 10 0 ..	49	38 49	—	46 10 0 ..	1 10 0 ..	June 1868
6000 Hingston Down, c, Calstock*	5 10 6 ..	—	—	—	0 10 0 ..	0 5 0 ..	April 1868
165 Levant, c, t, St. Just*	10 8 1 ..	—	—	—	1693 0 0 ..	2 0 0 ..	May 1868
6000 Lisburne, t, Cardiganshire*	18 15 0 ..	—	—	—	507 10 0 ..	3 0 0 ..	May 1868
3000 Mawes-y-Safn, t, Flint*	29 0 0 ..	—	—	—	3 15 0 ..	0 15 0 ..	April 1868
3000 Marke Valley, c, c, Cardigan*	4 10 6 ..	7 1/2	7 7 1/2	—	4 9 0 ..	0 4 6 ..	July 1868
3000 Mineray Boundary, t, Wrexham*	25 0 0 ..	—	—	—	0 13 0 ..	0 3 0 ..	Mar. 1868
2000 Mining Co. of Ireland, t, Wrexham*	7 0 0 ..	17 1/2 16 1/2 16 1/2	—	—	9 8 6 ..	0 2 0 ..	Mar. 1868
4000 Mwyndy Iron Ore*	50 0 0 ..	—	—	—	100 0 ..	2 10 0 ..	Mar. 1868
2000 Parry Mines, c, Anglesey*	50 0 0 ..	—	—	—	100 0 ..	2 10 0 ..	Mar. 1868
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6000 Prospect United, t, c, St. Hilary*	8 14 0 ..	—	—	—	0 5 0 ..	0 5 0 ..	June 1868
1120 Providence, t, U. L. Lelant*	10 6 7 ..	24	22 24	—	85 2 6 ..	0 10 0 ..	June 1868